



Special Inspections Report Maine Medical Center Pavilions "A" & "C" P6 Renovations

Portland, Maine
February 10, 2011

Prepared for:

Maine Medical Center
22 Bramhall Street
Portland, Maine 04101

In conjunction with:

The City of Portland
389 Congress Street
City Hall Room 315
Portland, Maine 04101

Maine Medical Center
Pavilions "A" & "C" P6 Renovations
February 10, 2011

Special Inspections Report
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Project: Maine Medical Center P6 Renovations
Date Prepared: 11/30/2009

Structural Statement of Special Inspections (Continued)

Final Report of Special Inspections (SSIC/SI 1)

[To be completed by the Structural Special Inspections Coordinator (SSIC/SI 1). Note that all Agent's Final Reports must be received prior to issuance.]

Project: *Maine Medical Center P6 Renovations*
Location: *Portland, Maine*
Owner: *Maine Medical Center*
Owner's Address: *22 Bramhall Street, Portland, Maine 04102*

Architect of Record: *Charlie Rizza* *Morris Switzer Environments for Health*
(name) (firm)
Structural Registered Design
Professional in Responsible Charge: *Ethan A. Rhile* *Becker Structural Engineers, Inc*
(name) (firm)

To the best of my information, knowledge and belief, the Special Inspections required for this project, and itemized in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Structural Special Inspection Coordinator

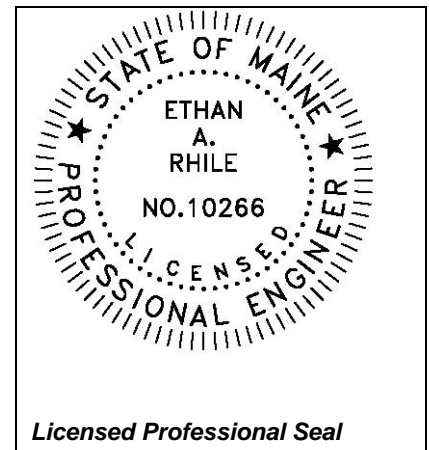
Ethan A. Rhile
(Type or print name)

Becker Structural Engineers
(Firm Name)



Signature

2/10/2011
Date



Project: Maine Medical Center P6 Renovations
Date Prepared: 11/30/2009

Structural Statement of Special Inspections (Continued)
Special Inspector's/Agent's Final Report

Project:

Special Inspector or

Agent:

Michael Drew

Quality Assurance Laboratories Inc.

(name)

(firm)

Designation:

To the best of my information, knowledge and belief, the Special Inspections or testing required for this project, and designated for this Inspector/Agent in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Special Inspector or Agent:

Gary E. Parechanian

(Type or print name)


Signature

2/9/2011

Date

**Licensed Professional Seal or
Certification Number**

Project: Maine Medical Center P6 Renovations
Date Prepared: 11/30/2009

Structural Statement of Special Inspections (Continued)

Special Inspector's/Agent's Final Report

Project:

Special Inspector or
Agent:

Roger E. Domingo

S.W. COLE ENGINEERING, INC.

(name)

(firm)

Designation:

To the best of my information, knowledge and belief, the Special Inspections or testing required for this project, and designated for this Inspector/Agent in the *Statement of Special Inspections* submitted for permit, have been performed and all discovered discrepancies have been reported and resolved.

Interim reports submitted prior to this final report form a basis for and are to be considered an integral part of this final report.

Respectfully submitted,
Special Inspector or Agent:

Roger E. Domingo

(Type or print name)



2/9/2011

Signature

Date

Field and laboratory testing was performed by Van Terrell, Jr. an ICC Spray - Applied Fireproofing Special Inspector

**Licensed Professional Seal or
Certification Number**

Structural Schedule of Special Inspections

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided to the Special Inspector for their records. *NOTE VERIFICATION THAT QUALIFIED INDIVIDUALS ARE AVAILABLE TO PERFORM STIPULATED TESTING AND/OR INSPECTION SHOULD BE PROVIDED PRIOR TO SUBMITTING STATEMENT. AGENT QUALIFICATIONS IN SCHEDULE ARE SUGGESTIONS ONLY; FINAL QUALIFICATIONS ARE SUBJECT TO THE DISCRETION OF THE REGISTERED DESIGN PROFESSIONAL PREPARING THE SCHEDULE.*

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge or Special Inspector of Record deems it appropriate that the individual performing a stipulated test or inspection have a specific certification, license or experience as indicated below, such requirement shall be listed below and shall be clearly identified within the schedule under the Agent Qualification Designation.

| | |
|-------|---|
| PE/SE | Structural Engineer – a licensed SE or PE specializing in the design of building structures |
| PE/GE | Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations |
| EIT | Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination |

Experienced Testing Technician

| | |
|-----|---|
| ETT | Experienced Testing Technician – An Experienced Testing Technician with a minimum 5 years experience with the stipulated test or inspection |
|-----|---|

American Concrete Institute (ACI) Certification

| | |
|----------|---|
| ACI-CFTT | Concrete Field Testing Technician – Grade 1 |
| ACI-CCI | Concrete Construction Inspector |
| ACI-LTT | Laboratory Testing Technician – Grade 1&2 |
| ACI-STT | Strength Testing Technician |

American Welding Society (AWS) Certification

| | |
|--------------|--------------------------------------|
| AWS-CWI | Certified Welding Inspector |
| AWS/AISC-SSI | Certified Structural Steel Inspector |

American Society of Non-Destructive Testing (ASNT) Certification

| | |
|------|---|
| ASNT | Non-Destructive Testing Technician – Level II or III. |
|------|---|

International Code Council (ICC) Certification

| | |
|----------|--|
| ICC-SMSI | Structural Masonry Special Inspector |
| ICC-SWSI | Structural Steel and Welding Special Inspector |
| ICC-SFSI | Spray-Applied Fireproofing Special Inspector |
| ICC-PCSI | Prestressed Concrete Special Inspector |
| ICC-RCSI | Reinforced Concrete Special Inspector |

National Institute for Certification in Engineering Technologies (NICET)

| | |
|-----------|--|
| NICET-CT | Concrete Technician – Levels I, II, III & IV |
| NICET-ST | Soils Technician - Levels I, II, III & IV |
| NICET-GET | Geotechnical Engineering Technician - Levels I, II, III & IV |

Other

Structural Statement of Special Inspections (Continued)

List of Agents

Project: *Maine Medical Center P6 Renovations*

Location: *Portland, Maine*

Owner: *Maine Medical Center*

This Statement of Special Inspections encompass the following discipline: **Structural**

(Note: Statement of Special Inspections for other disciplines may be included under a separate cover)

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- Soils and Foundations
- Cast-in-Place Concrete
- Precast Concrete System
- Masonry Systems
- Structural Steel
- Wood Construction
- Special Cases

| Special Inspection Agencies | Firm | Address, Telephone, e-mail |
|---|------------------------------------|--|
| 1. STRUCTURAL Special Inspections Coordinator (SSIC) | <i>Becker Structural Engineers</i> | <i>75 York Street Portland, Maine 04101 (207) 879-1838 info@beckerstructural.com</i> |
| 2. Special Inspector (SI 1) | <i>Becker Structural Engineers</i> | <i>75 York Street Portland, Maine 04101 (207) 879-1838 info@beckerstructural.com</i> |
| 3. Special Inspector (SI 2) | <i>Quality Assurance Labs</i> | <i>80 Pleasant Street South Portland, Maine 04106 (207) 799-8911</i> |
| 4. Testing Agency (TA 1) | | |
| 5. Testing Agency (TA 2) | | |
| 6. Other (O1) | | |

Note: The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

Project: Maine Medical Center P6 Renovations

Date Prepared: 11/30/2009

Structural Schedule of Special Inspections

SOILS & FOUNDATION CONSTRUCTION

| VERIFICATION AND INSPECTION | Y/N | EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|---|-----|--|----------|-------|------------------------|-------------------|
| IBC Section 1704.7, 1704.8, 1704.9 | | | | | | |
| 1. Verify existing soil conditions, fill placement and load bearing requirements | | | | | | |
| a. Prior to placement of prepared fill, determine that the site has been prepared in accordance with the approved soils report. | N | | | | | |
| b. During placement and compaction of fill material, verify material being used and maximum lift thickness comply with the approved soils report. | N | | | | | |
| c. Test in-place dry density of compacted fill complies with the approved soils report. | N | | | | | |
| 2. Pile foundations: | | | | | | |
| a. Observe and record procedures for static load testing of piles. | N | | | | | |
| b. Observe and record procedures for dynamic load testing of piles. | N | | | | | |
| c. Record installation of each pile and results of load test. Include cutoff and tip elevations of each pile relative to permanent reference. | N | | | | | |
| d. Test welded splices of steel piles | N | | | | | |
| 3. Pier foundations: Verify installation of pier foundations for buildings assigned to Seismic Design Category C, D, E or F. | N | | | | | |
| a. Verify pier diameter and length | N | | | | | |
| b. Verify pier embedment (socket) into bedrock | N | | | | | |
| c. Verify suitability of end bearing strata | N | | | | | |

Structural Schedule of Special Inspections
CONCRETE CONSTRUCTION

| VERIFICATION AND INSPECTION | Y/N | EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|---|-----|--|----------|-------|------------------------|-------------------|
| IBC Section 1704.4 | | | | | | |
| 1. Inspection of reinforcing steel, including prestressing tendons, and placement | N | | | | | |
| 2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5B | N | | | | | |
| 3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased | N | | | | | |
| 4. Verifying use of required design mix | N | | | | | |
| 5. At time fresh concrete is sampled to fabricate specimens for strength test, perform slump and air content test and temperature | N | | | | | |
| 6. Inspection of concrete and shotcrete placement for proper application techniques | N | | | | | |
| 7. Inspection for maintenance of specified curing temperature and techniques | N | | | | | |
| 8. Inspection of Prestressed Concrete | | | | | | |
| a. Application of prestressing force. | N | | | | | |
| b. Grouting of bonded prestressing tendons in seismic force resisting system | N | | | | | |
| 9. Erection of precast concrete members | N | | | | | |
| 10. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms beams and structural slabs | N | | | | | |

Structural Schedule of Special Inspections
MASONRY CONSTRUCTION – LEVEL 1 (NON-ESSENTIAL FACILITY)

| VERIFICATION AND INSPECTION IBC Section 1704.5 | Y/N | <u>EXTENT:</u> CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|---|-----|---|----------|-------|------------------------|-------------------|
| 1. As masonry construction begins, the following shall be verified to ensure compliance: | | | | | | |
| a. Proportions of site-prepared mortar. | N | | | | | |
| b. Construction of mortar joints. | N | | | | | |
| c. Location of reinforcement and connectors. | N | | | | | |
| d. Prestressing technique. | N | | | | | |
| e. Grade and size of prestressing tendons and anchorages. | N | | | | | |
| 2. The inspection program shall verify: | | | | | | |
| a. Size and location of structural elements. | N | | | | | |
| b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction. | N | | | | | |
| c. Specified size, grade and type of reinforcement. | N | | | | | |
| d. Welding of reinforcing bars. | N | | | | | |
| e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F). | N | | | | | |
| f. Application and measurement of prestressing force. | N | | | | | |
| 3. Prior to grouting, the following shall be verified to ensure compliance: | | | | | | |
| a. Grout space is clean. | N | | | | | |
| b. Placement of reinforcement and connectors and prestressing tendons and anchorages. | N | | | | | |
| c. Proportions of site-prepared grout and prestressing grout for bonded tendons. | N | | | | | |
| d. Construction of mortar joints. | N | | | | | |
| 4. Grout placement shall be verified to ensure compliance with code and construction document provisions. | N | | | | | |
| a. Grouting of prestressing bonded tendons. | N | | | | | |
| 5. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed. | N | | | | | |
| 6. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified. | N | | | | | |

Structural Schedule of Special Inspections
MASONRY CONSTRUCTION – LEVEL 2 (ESSENTIAL FACILITY)

| VERIFICATION AND INSPECTION IBC Section 1704.5 | Y/N | <u>EXTENT:</u> CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|---|-----|---|----------|-------|------------------------|-------------------|
| 1. From the beginning of masonry construction, the following shall be verified to ensure compliance: | | | | | | |
| a. Proportions of site-mixed mortar, grout and prestressing grout for bonded tendons. | N | | | | | |
| b. Placement of masonry units and construction of mortar joints. | N | | | | | |
| c. Placement of reinforcement, connectors and prestressing tendons and anchorages. | N | | | | | |
| d. Grout space prior to grouting. | N | | | | | |
| e. Placement of grout. | N | | | | | |
| f. Placement of prestressing grout. | N | | | | | |
| 2. The inspection program shall verify: | | | | | | |
| a. Size and location of structural elements. | N | | | | | |
| b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction. | N | | | | | |
| c. Specified size, grade and type of reinforcement. | N | | | | | |
| d. Welding of reinforcement. | N | | | | | |
| e. Protection of masonry during cold weather and (temperature below 40°F) or hot weather (temperature above 90°F). | N | | | | | |
| f. Application and measurement of prestressing force. | N | | | | | |
| 3. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed. | N | | | | | |
| 4. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified. | N | | | | | |

Project: Maine Medical Center P6 Renovations

Date Prepared: 11/30/2009

Structural Schedule of Special Inspections - STEEL CONSTRUCTION

| VERIFICATION AND INSPECTION IBC Section 1704.3 | Y/N | EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|---|-----|--|--|-------|------------------------|-------------------|
| 1. Material verification of high-strength bolts, nuts and washers: | | | | | | |
| a. Identification markings to conform to ASTM standards specified in the approved construction documents. | Y | S | Applicable ASTM material specifications; AISC 335, Section A3.4; AISC LRFD, Section A3.3 | SI1 | PE/SE or EIT | X |
| b. Manufacturer's certificate of compliance required. | Y | S | | SI1 | PE/SE or EIT | X |
| 2. Inspection of high-strength bolting | | | | | | |
| a. Bearing-type connections. | Y | P | AISC LRFD Section M2.5 IBC Sect 1704.3.3 | SI2 | AWS/AISC-SSI | X |
| b. Slip-critical connections. | N | | | | | |
| 3. Material verification of structural steel (IBC Sect 1708.4): | | | | | | |
| a. Identification markings to conform to ASTM standards specified in the approved construction documents. | Y | S | ASTM A 6 or ASTM A 568 IBC Sect 1708.4 | SI1 | PE/SE or EIT | X |
| b. Manufacturers' certified mill test reports. | Y | S | ASTM A 6 or ASTM A 568 IBC Sect 1708.4 | SI1 | PE/SE or EIT | X |
| 4. Material verification of weld filler materials: | | | | | | |
| a. Identification markings to conform to AWS specification in the approved construction documents. | Y | S | AISC, ASD, Section A3.6; AISC LRFD, Section A3.5 | SI1 | PE/SE or EIT | X |
| b. Manufacturer's certificate of compliance required. | Y | S | | SI1 | PE/SE or EIT | X |
| 5. Submit current AWS D1.1 welder certificate for all field welders who will be welding on this project. | Y | S | AWS D1.1 | SI1 | PE/SE or EIT | X |
| 6. Inspection of welding (IBC 1704.3.1): | | | | | | |
| a. Structural steel: | | | | | | |
| 1) Complete and partial penetration groove welds. | Y | C | AWS D1.1 | SI2 | AWS-CWI | X |
| 2) Multipass fillet welds. | Y | C | | SI2 | AWS-CWI | X |
| 3) Single-pass fillet welds > 5/16" | Y | C | | SI2 | AWS-CWI | X |
| 4) Single-pass fillet welds < 5/16" | Y | P | | SI2 | AWS-CWI | X |
| 5) Floor and deck welds. | Y | P | AWS D1.3 | SI2 | AWS-CWI | X |
| b. Reinforcing steel (IBC Sect 1903.5.2): | | | | | | |
| 1) Verification of weldability of reinforcing steel other than ASTM A706. | N | | | | | |
| 2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls and shear reinforcement. | N | | | | | |
| 3) Shear reinforcement. | N | | | | | |
| 4) Other reinforcing steel. | N | | | | | |
| 7. Inspection of steel frame joint details for compliance (IBC Sect 1704.3.2) with approved construction documents: | | | | | | |
| a. Details such as bracing and stiffening. | Y | P | | SI1 | PE/SE or EIT | X |
| b. Member locations. | Y | P | | SI1 | PE/SE or EIT | X |
| c. Application of joint details at each connection. | Y | P | | SI1 | PE/SE or EIT | X |

Structural Schedule of Special Inspection Services
FABRICATION AND IMPLEMENTATION PROCEDURES – STRUCTURAL STEEL

| VERIFICATION AND INSPECTION IBC Section 1704.2 | Y/N | EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|--|------------|---|---|--------------|--------------------------------|---------------------------|
| 1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. AISC Certification | Y | S | Fabricator shall submit one of the two qualifications | SI1 | PE/SE or EIT | X |
| 3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. | Y | S | IBC 1704.2.2 | SI1 | PE/SE or EIT | |

Structural Schedule of Special Inspection Services
FABRICATION AND IMPLEMENTATION PROCEDURES – WOOD TRUSSES

| VERIFICATION AND INSPECTION IBC Section 1704.2 | Y/N | <u>EXTENT:</u> CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|---|-----|---|----------|-------|------------------------|-------------------|
| 1. Fabrications Procedures: Review of fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents. -OR- 2. TPI Inspection Program: Fabricator shall participate in the TPI Quality Assurance Inspection Program, and maintain a copy of the Quality Assurance Procedures Manual, QAP-90. Submit copy of certificate. All trusses shall bear the TPI Registered Mark. | N | | | | | |
| 3. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building code official stating that the work was performed in accordance with the approved construction documents | N | | | | | |

Structural Schedule of Special Inspections
WOOD CONSTRUCTION

| VERIFICATION AND INSPECTION IBC Section 1704.6 | Y/N | EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETED |
|---|-----|--|----------|-------|------------------------|-------------------|
| 1. Fabrication of high-load diaphragms | | | | | | |
| a. Verify wood structural panel sheathing for grade and thickness | N | | | | | |
| b. Verify the nominal size of framing members at adjoining panel edges | N | | | | | |
| b. Verify the nail or staple diameter and length | N | | | | | |
| b. Verify the number of fastener lines | N | | | | | |
| b. Verify the spacing between fasteners in each line and at edge margins | N | | | | | |
| 2. Load Tests for Joist Hangers: Provide evidence of manufacturer's load test in accordance with ASTM D1761 including the vertical load bearing capacity, torsional moment capacity, and deflection characteristics when there is no calculated procedure recognized by the code. | N | | | | | |

Structural Schedule of Special Inspections
SEISMIC RESISTANCE - STRUCTURAL

| VERIFICATION AND INSPECTION | Y/N | EXTENT: CONTINUOUS, PERIODIC, SUBMITTAL, OR NONE | COMMENTS | AGENT | AGENT QUALIFICATION | TASK COMPLETE D |
|---|-----|--|----------------------------|-------|------------------------|-----------------------|
| IBC Section 1707 | | | | | | |
| 1. Special inspections for seismic resistance. Special inspection as specified in this section is required for the following: | | | Seismic Design Category: C | | | |
| a. The seismic-force-resisting systems in structures assigned to Seismic Design Category C, D, E or F | Y | P | IBC 1707.1 | SI1 | PE/SE or EIT | X |
| 2. Structural steel: Continuous special inspection for structural welding in accordance with AISC 341. | N | None (not a AISC 341 project) | | | | |
| 3. Structural wood: | | | | | | |
| a. Continuous special inspection during field gluing operations of elements of the seismic-force-resisting system. | N | | | | | |
| b. Periodic special inspections for nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including drag struts, braces and hold-downs | N | | | | | |
| 4. Cold-formed steel framing: Periodic special inspections during welding operations of elements of the seismic-force-resisting system. Periodic special inspections for screw attachment, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including struts, braces, and hold-downs | N | | | | | |
| 4. Seismic isolation system. Provide periodic special inspection during the fabrication and installation of isolator units and energy dissipation devices if used as part of the seismic isolation system | N | | | | | |

Quality Assurance Plan – Seismic and Wind

QUALITY ASSURANCE FOR SEISMIC RESISTANCE CHECK LIST [IBC 1705]

Seismic Design Category **C**

FOR SEISMIC DESIGN CATEGORY C OR HIGHER:

Structural:

- The seismic-force-resisting systems
 - Steel Braced Frames and associated connections/anchorage
 - Steel Moment Frames and associated connections
 - Shear walls: CMU Wood Concrete
 - Diaphragms: Floor Roof
 - Other:

QUALITY ASSURANCE FOR WIND RESISTANCE CHECK LIST [IBC 1706]

Wind Exposure Category **C**

| REQUIRED | NOT REQUIRED | NOT APPLICABLE | QUALITY ASSURANCE PLAN REQUIREMENTS (A Quality Assurance Plan is required where indicated below) |
|--------------------------|-------------------------------------|--------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | In wind exposure Categories A and B, where the 3-second-gust basic wind speed is 120 miles per hour (mph) (52.8 <i>m/sec</i>) or greater. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | In wind exposure Categories C and D, where the 3-second-gust basic wind speed is 110 mph (49 <i>m/sec</i>) or greater. |

Prepared by:

Building Code Official's Acceptance:

Signature

Date

Signature

Date

Disclaimers and Qualifications

01000.2

The program of Structural/Special Tests and Inspections does not relieve the Contractor or its subcontractors of their responsibilities and obligations for quality control of the work, for any design work which is included in the scope of services, and for full compliance with the requirements of the Construction Documents. Furthermore, the detection of, or the failure to detect, deficiencies or defects in work during testing and inspection conducted pursuant to the Program does not relieve the Contractor or its subcontractors of their responsibility to correct all deficiencies or defects, whether detected or undetected, in all parts of work, and to otherwise comply with all requirements of the Construction Documents. Additional disclaimers and/or qualifications may be included in the Owner-Special Inspection agreement.





| |
|---------------------------|
| OBSERVATION REPORT |
| Structural Steel |

| | |
|-----------------|----------|
| Date: | 6/7/2010 |
| Time: | 10:00 am |
| Temp: | N/A |
| Weather: | N/A |

| | |
|-----------------------|------------------------------|
| Project: | MMC P6 Connector/Renovations |
| Location: | Portland, Maine |
| Becker Job No: | 2370 |

Observation Location:
Reviewed existing column & beam locations for new connector.

| | Satisfactory | Un-Satisfactory | Not Completed | Not Applicable | Comments |
|-------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|----------|
| Bolt Condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Weld Condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Anchor Bolts, Nuts, & Washers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Grout/Leveling Plates | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Fit Up/Plumbness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Metal Deck Welds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Pour Stops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Bracing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

Notes:

I met with Dave Moore of Hebert. The existing bearing condition at the southeast end of the connector was buried in concrete. Offset beams made the column difficult to find. I worked with Hebert to find the column using a hammer drill. Column condition was located and appeared to be as drawn on the original/design drawings..

Signed: Ethan A. Rhile, P.E.

| |
|---------------------------|
| OBSERVATION REPORT |
| Structural Steel |

| | |
|-----------------|-----------|
| Date: | 8/11/2010 |
| Time: | 6:30am am |
| Temp: | N/A |
| Weather: | N/A |

| | |
|-----------------------|------------------------------|
| Project: | MMC P6 Connector/Renovations |
| Location: | Portland, Maine |
| Becker Job No: | 2370 |

Observation Location:
 Reviewed existing and installed conditions adjacent to Pavilion "A"..

| | Satisfactory | Un-Satisfactory | Not Completed | Not Applicable | Comments |
|-------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|----------|
| Bolt Condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Weld Condition | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Anchor Bolts, Nuts, & Washers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Grout/Leveling Plates | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Fit Up/Plumbness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Metal Deck Welds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Pour Stops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Bracing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

Notes:
 I met with Dave Moore of Hebert. We looked at the existing conditions below the floor, including the end condition of the exterior beams and the condition where the new beams framed in. Discussed options for welding the new, interior beam connections with Hebert.

Signed: Ethan A. Rhile, P.E.

| |
|---------------------------|
| OBSERVATION REPORT |
| Structural Steel |

| | |
|-----------------|-----------|
| Date: | 9/02/2010 |
| Time: | 9:40am |
| Temp: | N/A |
| Weather: | N/A |

| | |
|-----------------------|------------------------------|
| Project: | MMC P6 Connector/Renovations |
| Location: | Portland, Maine |
| Becker Job No: | 2370 |

Observation Location:
Interior beams installed thorough Pavilion "C".

| | Satisfactory | Un-Satisfactory | Not Completed | Not Applicable | Comments |
|-------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|----------|
| Bolt Condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Weld Condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Anchor Bolts, Nuts, & Washers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Grout/Leveling Plates | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Fit Up/Plumbness | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Metal Deck Welds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Pour Stops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Bracing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

Notes:

Signed: Ethan A. Rhile, P.E.

| |
|---------------------------|
| OBSERVATION REPORT |
| Structural Steel |

| | |
|-----------------|-----------|
| Date: | 9/15/2010 |
| Time: | 10:40am |
| Temp: | N/A |
| Weather: | N/A |

| | |
|-----------------------|------------------------------|
| Project: | MMC P6 Connector/Renovations |
| Location: | Portland, Maine |
| Becker Job No: | 2370 |

Observation Location:
Installation of connector frame, base plate conditions and new-to-existing.

| | Satisfactory | Un-Satisfactory | Not Completed | Not Applicable | Comments |
|-------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|----------|
| Bolt Condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Weld Condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Anchor Bolts, Nuts, & Washers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Grout/Leveling Plates | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Fit Up/Plumbness | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Metal Deck Welds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Pour Stops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Bracing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

Notes:

Signed: Ethan A. Rhile, P.E.

| |
|---------------------------|
| OBSERVATION REPORT |
| Structural Steel |

| | |
|-----------------|-----------|
| Date: | 9/16/2010 |
| Time: | 10:40am |
| Temp: | N/A |
| Weather: | N/A |

| | |
|-----------------------|------------------------------|
| Project: | MMC P6 Connector/Renovations |
| Location: | Portland, Maine |
| Becker Job No: | 2370 |

Observation Location:
Installation of connector frame (complete erection), base plate conditions and new-to-existing.

| | Satisfactory | Un-Satisfactory | Not Completed | Not Applicable | Comments |
|-------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|----------|
| Bolt Condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Weld Condition | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Anchor Bolts, Nuts, & Washers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Grout/Leveling Plates | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Fit Up/Plumbness | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Metal Deck Welds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Pour Stops | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Bracing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Additional Items | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

Notes:
Reviewed base conditions that had been welded in the past day.

Signed: Ethan A. Rhile, P.E.

05120 Structural Steel

QA Labs Testing/Inspection Report

05120.2



Quality Assurance Labs Inc.

NON-DESTRUCTIVE TESTING AND INSPECTION SERVICES

80 PLEASANT AVENUE • SOUTH PORTLAND, MAINE 04106 • TEL: (207) 799-8911 • FAX: (207) 799-7251

INSPECTION REPORT

| | | | |
|---|-------------------------|---------------|---------------------------|
| CUSTOMER: MAINE MEDICAL CENTER | | | PAGE 1 OF 1 |
| ADDRESS: PORTLAND, ME. | | | |
| ATTENTION: MARSHALL BARTLETT | | | |
| COPIES: FILE | | | |
| PROJECT: P6 CONSTRUCTION / STRUCTURAL STEEL INSPECTIONS | | | |
| OWNER: MMC | | | |
| CONTRACTOR: HEBERT CONSTRUCTION | | | |
| JOB No.: | REPORT No.: QAL-10-1682 | P. O. NUMBER: | DATES INSPECTED: 09-23-10 |

REMARKS

>>>>> SITE VISIT TO PERFORM VISUAL INSPECTIONS OF NEW STRUCTURAL STEEL AT P6 :

> COLUMN TO BEAM AND BEAM TO BEAM HIGH STRENGTH T/C BOLTED CONNECTIONS COMPLETE .

> C J P MOMENT CONNECTIONS COMPLETE . note: drawing detail for lower flange moment welds list added 5/16" fillet welds . Part geometry does not allow any fillet welds at these connections.

COMPLETED ITEMS COMPLY WITH SITE DOCUMENTS AND AWS D1.1 REQUIREMENTS FOR VISUAL ACCEPTANCE .

END ITEMS ////



MICHAEL W. DREW
CWI 99050211
CC1 EIP. 06/01/11

FAA REPAIR STATION NUMBER RX5R187N
METHOD(S),PROCESS(ES),PROCEDURE(S) MERCURY FREE

ADDITIONAL INFORMATION - SEE ATTACHED: SKETCH(ES) SUPPLEMENTARY SHEET(S) NDT REPORTS VIDEO

SIGNATURES

INSPECTOR M. Drew CWI # 99050211

SUPERVISOR

| CERTIFICATION | LEVEL | DATE | | |
|---------------|-------|------|----|----|
| | | M | D | Y |
| ASNT | II | 09 | 24 | 10 |

05120 Structural Steel

SW Cole Fireproofing Test Report

05120.2





• Geotechnical Engineering • Field & Lab Testing • Scientific & Environmental Consulting

**REPORT OF SFRM THICKNESS, DENSITY, and ADHESION/COHESION
COLUMN OR BEAM
ASTM E605/E736**

Project Name: MMC P6
 Project Number: 10-1010
 Client: Maine Medical Center
 Report Date: _____

SFRM Supplier: W.R. Grace
 SFRM Material: Monokote MK-6/HY
 SFRM Installer: New England Fireproofing
 Installation Date: Prior to 9/23/10

THICKNESS

| Test Date | Floor No. | Member No. | Member Type | Minimum (in) | Maximum (in) | Average (in) | Specification (in) |
|-----------|--------------|----------------------|-------------|--------------|--------------|--------------|--------------------|
| 9/23/10 | Roof Framing | Line 2.75 & line D.5 | Beam | 0.750 | 1.375 | 1.156 | 1.125 |
| 9/23/10 | Roof Framing | Line 2.75 & line M.5 | Beam | 0.625 | 0.625 | 1.323 | 1.313 |
| | | | | | | | |
| | | | | | | | |

DENSITY

| Test Date | Floor No. | Member No. | Member Type | Thickness (in) | Area (in ²) | Density (pcf) | Specification (pcf) |
|-----------|--------------|-----------------|-------------|----------------|-------------------------|---------------|---------------------|
| 9/23/10 | Roof Framing | Line 2.75 & M.5 | Beam | 1.651 | 48.000 | 17 | 15 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

ADHESION/COHESION

| Test Date | Floor No. | Member No. | Member Type | Failure Type | Force (Lbs) | Bond Strength (Psf) | Specification (Psf) |
|-----------|--------------|-----------------|-------------|--------------|-------------|---------------------|---------------------|
| 9/23/10 | Roof Framing | Line 2.75 & M.5 | Beam | X | 20 | 347 | 339psf |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Reviewed By: RED



Project Name: MMC P-6 Addition

Client: Maine Medical Center

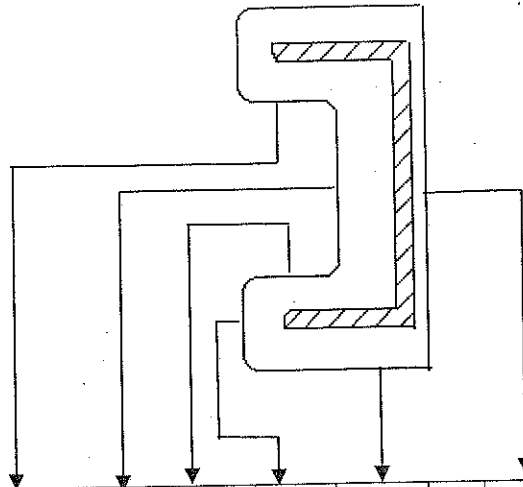
Comments: Substrate type C-Channel C8 X 11.5 Pavilion A Roof Framing

Project No.: 10-1010

Date: 9-23-10

Sheet: 1 of 1

SWCE Rep.: VLT



| Location | Required Thickness | 1 | 2 | 3 | 4 | 5 | 6 | | | Average Thickne |
|----------------------|--------------------|------|-------|-------|------|-------|-------|--|--|-----------------|
| Line A.5 & line 4.25 | 1.125 | 1.56 | 2.375 | 1.25 | .625 | 1.125 | 1.625 | | | 1.426 |
| Line A.5 & line 4.25 | 1.125 | 1.5 | 2.375 | 1.312 | .625 | 1.25 | 1.625 | | | 1.447 |
| | | | | | | | | | | |
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*Required for columns only

Reviewed By: RED

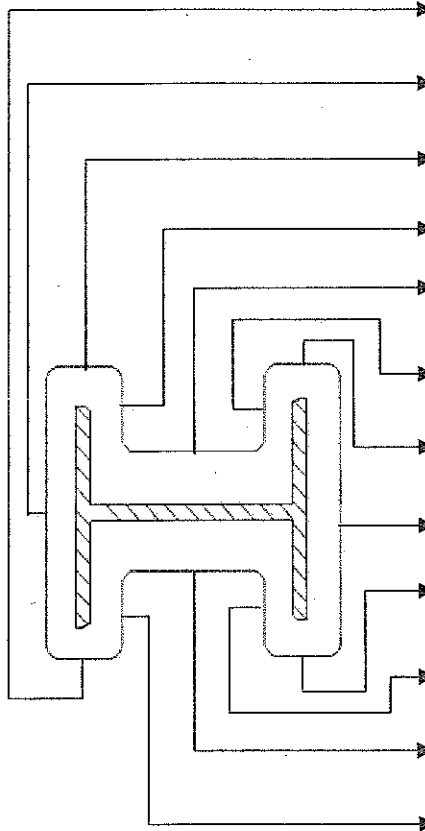


WORKSHEET

SFRM THICKNESS ON BEAM OR COLUMN
ASTM E605

Project Name: MMC P-6
 Project Number: 10-1010
 Client: Maine Medical Center

SFRM Supplier: W.R. Grace
 SFRM Material: Monokote MK-6/HY
 SFRM Installer: New England Fireproofing
 Installation Date: Prior to 9/23/10

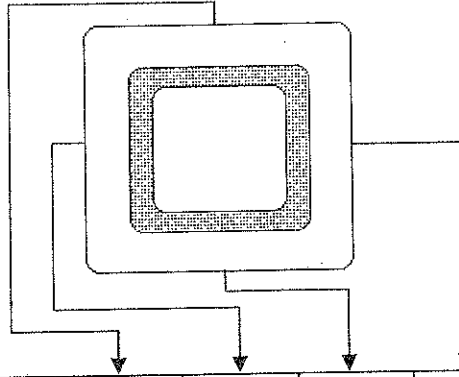


| Floor No. | Column/Beam No. | Type | Test Date | Spec. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10* | 11* | 12* | Average | |
|--------------|----------------------|-------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|---------|-------|
| Roof Framing | Line 2.75 & line D.5 | Beam W6X15 | 9/23/10 | 1.125 | 0.938 | 2.375 | 1.375 | 0.750 | 1.000 | 0.750 | 2.000 | 2.875 | 1.625 | | | | | 1.146 |
| Floor No. | Column/Beam No. | Type | Test Date | Spec. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10* | 11* | 12* | Average | |
| Roof Framing | Line 2.75 & line M.5 | Beam W10X12 | 9/23/10 | 1.313 | 1.375 | 2.000 | 2.000 | 0.875 | 1.313 | 0.750 | 1.500 | 1.625 | 1.375 | | | | | 1.319 |
| Floor No. | Column/Beam No. | Type | Test Date | Spec. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10* | 11* | 12* | Average | |
| Floor No. | Column/Beam No. | Type | Test Date | Spec. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10* | 11* | 12* | Average | |
| Floor No. | Column/Beam No. | Type | Test Date | Spec. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10* | 11* | 12* | Average | |

* Not Required for Beams



**REPORT OF FIRE PROOFING
THICKNESS OF MATERIAL ON SQUARE TUBING – ASTM E605**



| Location | Required Thickness | 1 | 2 | 3 | 4 | Average Thickness |
|----------------------------|--------------------|-------|-------|-------|-------|-------------------|
| Line 3 & line A | 1.00 | 1.000 | 0.875 | 1.125 | 1.063 | 1.015 |
| Line 3 & line A | 1.00 | 1.000 | 1.125 | 1.000 | 1.125 | 1.062 |
| | | | | | | |
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Project No.: 10-1010

Project Name: Maine Medical Center P-6 Renovation

Client: Maine Medical Center

Date: 11-03-10

S. W. Cole Engineering, Inc. Representative: Teague Adams

Appendix A
Material Certifications



One Dana Street
Portland, ME 04101
t 207.773.8841
f 207.773.8840
morriswitzer.com

Transmittal

Transmitted to:

| | | | |
|-----------|--|-------------|--|
| Attention | <input type="text" value="Ethan Rhile"/> | Date | <input type="text" value="January 28, 2011"/> |
| Company | <input type="text" value="Becker Structural Engineers"/> | Project No. | <input type="text" value="28034"/> |
| Address | <input type="text" value="75 York Street Portland, Maine 04101-4550"/> | Project | <input type="text" value="Maine Medical Center Pavilion 6 Renovations"/> |

We Transmit via [Click Here to Make Selection](#)

Herewith In accordance with your request Under separate cover

For your:

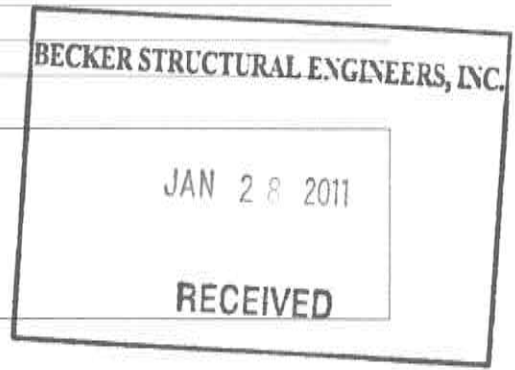
Approval Distribution Information Review/Comment Records Use

Material Transmitted:

Drawings Specifications Shop Drawings Other

| No. of Copies | Date | Revision No. | Description |
|---------------|--|--------------|--|
| <u>6</u> | <u>1/25/11</u> <u>Received 1/27</u> | <u></u> | <u>Precision Welding Certification and Compliance Reports per attached list from Hebert Construction</u> |
| <u> </u> | <u> </u> | <u> </u> | <u> </u> |
| <u> </u> | <u> </u> | <u> </u> | <u> </u> |
| <u> </u> | <u> </u> | <u> </u> | <u> </u> |
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| <u> </u> | <u> </u> | <u> </u> | <u> </u> |

If enclosures are not as noted, please inform us immediately.



Remarks:

Copies to:

Enclosures:

By:

Charles Rizza



Letter of Transmittal

COPY

To: Charlie Rizza
Morris Switzer
183 Middle Street
Portland, ME 04101
Ph: 207-773-8841 Fax: (207) 773-8840

Transmittal #: 379
Date: 1/25/2011
Job: 090163 MMC - P6 - P2 A Renovations

Subject:

- WE ARE SENDING YOU**
- Attached
 - Under separate cover via None the following items:
 - Shop drawings
 - Prints
 - Plans
 - Samples
 - Copy of letter
 - Change order
 - Specifications
 - Certification Data

| Document Type | Copies | Date | No. | Description |
|---------------|--------|------|-----|--|
| Submittal | 6 | | | Precision Welding - AISC Certification |
| Submittal | 6 | | | Precision Welding - Weld Filler Material Certification Of Compliance |
| Submittal | 6 | | | Precision Welding - Structural Steel Mill Test Reports |
| Submittal | 6 | | | Precision Welding - High Strength Bolts Certification Of Compliance |

THESE ARE TRANSMITTED as checked below:

- For approval
- For your use
- As requested
- For review and comment
- FOR BIDS DUE
- Approved as submitted
- Approved as noted
- Returned for corrections
- Other
- PRINTS RETURNED AFTER LOAN TO US
- Resubmit ___ copies for approval
- Submit ___ copies for distribution
- Return ___ corrected prints

Remarks:

Copy To:

From: Steve Janosco (Hebert Construction)

Signature: Steve Janosco

American Institute of Steel Construction

is proud to recognize

Precision Welding & Fabrication, Inc.

Westbrook, ME

for successfully meeting the quality certification requirements for

Standard for Steel Building Structures



Roger E. Ferch

Roger E. Ferch

Certification valid through September 2011



CERTIFICATE OF ANALYSIS

DATE : 01/04/11

PAGE : 1

CERTIFICATE OF TYPICAL ANALYSIS

ORDER # : 0

PART NUMBER : 245013313

DIAMETER & LENGTH: .045
TRADE NAME: DUAL SHIELD
TYPE : II 70 Ultra
HEAT NO: 123456
CLASSIFICATION : E71T-1M/T-12M
AWS A5.20:2005,ASME SFA 5.20

CHEMICAL ANALYSIS :

Table with 3 columns: ELEMENT, PROPERTIES, SPEC. REQUIREMENTS. Rows include Carbon, Manganese, Silicon, Phosphorus, Sulphur, Chromium, Nickel, Molybdenum, Vanadium, and Copper.

RADIOGRAPHY :

XRAY Satisfactory

DIFFUSIBLE HYDROGEN :

AVERAGE : 2.7 (ml/100gr Avg).
GAS USED : 75AR/25C02

TENSILE REQUIREMENTS:

AS WELDED

MIN YIELD(psi) : 58000
MIN YIELD(MPa) : 400
MIN TENSILE(psi) : 70000
MIN TENSILE(MPa) : 480
MIN ELONG : 22.0
MAX TENSILE(psi) : 90000
MAX TENSILE(MPa) : 620

TENSILE RESULTS :

AS WELDED

GAS USED : 75AR/25C02
CALCULATE YIELD(psi) : 74000
CALCULATE YIELD(Mpa) : 511
CALCULATE TENSILE(psi) : 82250
CALCULATE TENSILE(Mpa) : 568
% ELONGATION : 30.0
% REDUCTION OF AREA : 73.5

The ESAB Group, Inc.
1500 Karen Lane
Hanover, Pa 17331
www.esab.com
Fax: 1-800-444-8911
Phone: 1-800-ESAB-123

By: K. Wildasin
K. Wildasin, Supervisor, Q.A. Services



CERTIFICATE OF ANALYSIS

DATE : 01/04/11

PAGE : 2

ORDER # : 0

CHARPY V-NOTCH REQUIREMENTS:

AS-WELDED :

CVN TEMPERATURE (F) : -20
CVN TEMPERATURE (C) : -29
CVN AW MIN (FT-LBS) : 20
CVN AW MIN (JOULES) : 27

CHARPY V-NOTCH RESULTS:

AS-WELDED :

| TEMP(F) | FT-LBS | TEMP(C) | JOULES | GAS |
|---------|--------|---------|--------|------------|
| 0 | 101 | -18 | 137 | 75AR/25C02 |
| -20 | 61 | -29 | 83 | 75AR/25C02 |

FILLET : Satisfactory

This material is certified to be free of any mercury.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification.

The ESAB Group, Inc.
1500 Karen Lane
Hanover, Pa 17331
www.esab.com
Fax: 1-800-444-8911
Phone: 1-800-ESAB-123

By: K. Wldasin
K. Wldasin, Supervisor, Q.A. Services

ASTM A325

SCOPE

The ASTM A325 specification covers high strength heavy hex structural bolts from 1/2" diameter through 1-1/2" diameter. These bolts are intended for use in structural connections and therefore have shorter thread lengths than standard hex bolts.

This specification is applicable to heavy hex structural bolts only. For bolts of other configurations and thread lengths with similar mechanical properties, see Specification A 449.

Bolts for general applications, including anchor bolts, are covered by Specification A 449. Also refer to Specification A 449 for quenched and tempered steel bolts and studs with diameters greater than 1-1/2" but with similar mechanical properties.

TYPES

TYPE 1 Medium carbon, carbon boron, or medium carbon alloy steel.

TYPE 2 Withdrawn November 1991.

TYPE 3 Weathering steel.

T Fully threaded A325.

M Metric A325.

CONNECTION TYPES

SC Slip critical connection.

N Bearing type connection with threads included in the shear plane.

X Bearing-type connection with threads excluded from the shear plane.

MECHANICAL PROPERTIES

| Size | Tensile, ksi | Yield, ksi | Elong. %, min | RA %, min |
|---------------|--------------|------------|---------------|-----------|
| 1/2 - 1 | 120 min | 92 min | 14 | 35 |
| 1-1/8 - 1-1/2 | 105 min | 81 min | 14 | 35 |

RECOMMENDED NUTS AND WASHERS

| Nuts | | Washers | |
|--------|------------|---------|--------|
| Type 1 | Type 3 | Type 1 | Type 3 |
| Plain | Galvanized | Plain | Plain |

A563C, C3, D, DH, DH3

A563DH

A563C3, DH3

F436-1

F436-3

Note: Nuts conforming to A194 Grade 2H are a suitable substitute for use with A325 heavy hex structural bolts.

ASTM A490

SCOPE

The ASTM A490 specification covers quenched and tempered, alloy steel, **heavy hex structural bolts** from 1/2" diameter through 1 1/2" diameter with a minimum 150 ksi tensile. These bolts are intended for use in structural connections and therefore have shorter thread lengths than standard hex bolts. Refer to the Structural Bolts page of our site for thread lengths and other related dimensions. A490 bolts are similar in application and dimensions to A325 heavy hex structural bolts but are made from an alloy steel rather than a medium carbon steel, resulting in a higher strength fastener.

The A490 specification is applicable to heavy hex structural bolts only. For bolts with different thread lengths than specified for structural bolts but with similar mechanical properties, see Specification **A354 grade BD**.

ASTM A490 bolts shall not be coated by hot-dip galvanizing, mechanical deposition, or electroplating with zinc or other metallic coatings due to the potential risk of hydrogen embrittlement.

Additional testing in the form of Magnetic Particle Inspection for Longitudinal Discontinuities and Transverse Cracks is a requirement of the A490 specification.

TYPES

TYPE 1 Medium carbon and alloy steel.

TYPE 2 Withdrawn in 2002.

TYPE 3 Weathering steel.

M Metric A490.

CONNECTION TYPES

SC Slip critical connection.

N Bearing type connection with threads included in the shear plane.

X Bearing type connection with threads excluded from the shear plane.

MECHANICAL PROPERTIES

| Size | Tensile, ksi | Yield, ksi | Elong. %, min | RA %, min |
|-------------|--------------|------------|---------------|-----------|
| 1/2 - 1-1/2 | 150-173 | 130 | 14 | 40 |

RECOMMENDED NUTS AND WASHERS

| Nuts | | Washers | |
|---------------|----------------|---------|--------|
| Type 1 | Type 3 | Type 1 | Type 3 |
| <u>A563DH</u> | <u>A563DH3</u> | F436-1 | F436-3 |

Note: Nuts conforming to A194 Grade 2H are a suitable substitute for use with A490 heavy hex structural bolts.

NOTES

1. The bolts shall not be coated by hot-dip zinc coating, mechanical deposition, or electroplating with zinc or other metallic coatings due to the potential for hydrogen embrittlement. Each sample representative of the lot shall be magnetic particle inspected for longitudinal discontinuities and transverse cracks.

Lynch Toll 10598
Price PO14817

08700



Chemical and Physical Test Report
Made and Method in USA

G-151524

CARTERSVILLE STEEL MILL
364 OLD GRASSDALE RD NE
CARTERSVILLE GA 30121 USA
(770) 387-3380

ID: #1509501

| | | |
|--|--|------------------------------|
| | | SHP DATE 04/29/10 |
| | | CUST. ACCOUNT NO 50842385 |

PRODUCED IN: CARTERSVILLE

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER | | | | | | | | | | | | | | | |
|----------------------|------------|--|-------------|------------------|-----|-----|-----|-----|------|------|------|-------|-------|------|------|--------|--------|--------|-------|
| W12 X 148 <i>50'</i> | A57250/992 | ASTM A572 GR50-47, ASTM A592-46A, ASTM A709 GR50-49A | 0090475-57 | C1278DCF-87 | | | | | | | | | | | | | | | |
| HEAT I.D. | C | Mn | P | S | Si | Cu | Ni | Cr | Mo | V | Nb | B | N | Sn | Al | Ti | Ca | Zn | C Eqr |
| G102558 | .07 | .34 | .015 | .025 | .27 | .27 | .09 | .04 | .022 | .028 | .002 | .0009 | .0190 | .016 | .001 | .00200 | .00200 | .00390 | .512 |

Mechanical Test: Yield 59308 PSI, 408.17 MPA Tensile: 72816 PSI, 501.94 MPA %E: 23.3%/in, 23.3/200MM
Customer Requirements CASTING: STRAND CAST
Mechanical Test: Yield 57709 PSI, 397.83 MPA Tensile: 72018 PSI, 498.42 MPA %E: 24.0%/in, 24.0/200MM
Customer Requirements CASTING: STRAND CAST

PRODUCED IN: CARTERSVILLE

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER | | | | | | | | | | | | | | | |
|---------------------|------------|--|-------------|------------------|-----|-----|-----|-----|------|------|------|-------|-------|------|------|--------|--------|--------|-------|
| W12 X 148 <i>60</i> | A57250/992 | ASTM A572 GR50-47, ASTM A592-46A, ASTM A709 GR50-49A | 0090475-59 | C1278DCF-89 | | | | | | | | | | | | | | | |
| HEAT I.D. | C | Mn | P | S | Si | Cu | Ni | Cr | Mo | V | Nb | B | N | Sn | Al | Ti | Ca | Zn | C Eqr |
| G102558 | .07 | .34 | .016 | .022 | .27 | .24 | .07 | .04 | .019 | .028 | .001 | .0003 | .0054 | .009 | .001 | .00200 | .00200 | .00299 | .308 |

Mechanical Test: Yield 55304 PSI, 381.28 MPA Tensile: 68100 PSI, 489.53 MPA %E: 20.4%/in, 20.4/200MM
Customer Requirements CASTING: STRAND CAST
Mechanical Test: Yield 56709 PSI, 399.43 MPA Tensile: 67800 PSI, 488.09 MPA %E: 20.26%/in, 20.2/200MM
Customer Requirements CASTING: STRAND CAST

Customer Notes

NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.
All manufacturing processes including mill and cast, occurred in USA. MTR
complies with EN10204 3.1B

THE ABOVE FIGURES ARE CERTIFIED EXTRACTS FROM THE ORIGINAL CHEMICAL AND PHYSICAL TEST RECORDS
AS CONTAINED IN THE PERMANENT RECORDS OF COMPANY.

Maskov

Bhaskar Yalamanchili
Quality Director
Gerdau Ameristeel

Zachary

Metallurgical Services Manager
CARTERSVILLE STEEL MILL

Seller warrants that all material furnished shall comply with specifications subject to standard published manufacturing variations. NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARE MADE BY THE
SELLER, AND SPECIFICALLY EXCLUDED ARE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
In no event shall seller be liable for indirect, consequential or punitive damages arising out of or related to the materials furnished by seller.
Any claim for damages for materials that do not conform to specifications must be made from buyer to seller immediately after delivery of same in order to allow the seller the opportunity to inspect the material in
question.

Name: Mill Sales, Tampa, FL Ph: 1-800-237-0230

04/29/2010 Thu 06:25



CARTERSVILLE STEEL MILL
 384 OLD BRASSVILLE RD NE
 CARTERSVILLE GA 30121 USA
 (770) 387-3300

Chemical and Physical Test Report
 Made and Tested in USA

G-133124

*Lynn Inv 10598
 Price PO 14817*

| | | |
|-------------------|--|----------|
| SHIP DATE | | 06/22/10 |
| CLIENT ACCOUNT NO | | 50042865 |

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CLIENT P.O. NUMBER |
|--------------|------------------------------------|---|-------------|--------------------|
| W12 X 13# | A572GR50 | ASTM A572 GR50-47, ASTM A572-48A, ASTM A709 GR50-48A | 0088045-03 | C13220C-06 |
| HEAT I.D. | C | Mn P S Si Cu Ni C | | |
| G102827 | .08 1.18 .017 .024 .28 .25 .08 .03 | .022 .088 .042 .0003 .0003 .008 .001 .00200 .00140 .00200 | | |

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CLIENT P.O. NUMBER |
|--------------|------------------------------------|---|-------------|--------------------|
| W12 X 13# | A572GR50 | ASTM A572 GR50-47, ASTM A572-48A, ASTM A709 GR50-48A | 0088045-01 | C13220C-01 |
| HEAT I.D. | C | Mn P S Si Cu Ni C | | |
| G102848 | .08 1.08 .022 .028 .27 .28 .07 .07 | .022 .053 .031 .0003 .0009 .008 .001 .00200 .00140 .00200 | | |

PRODUCED IN: CARTERSVILLE

Customer Requirements: CASTING: STRAND CAST
 Mechanical Test: Yield 57500 PSI, 288.00 MPa Tensile: 72000 PSI, 500.25 MPa
 Yield 60700 PSI, 419.58 MPa Tensile: 74400 PSI, 512.97 MPa
 Customer Requirements: CASTING: STRAND CAST

Customer Notice:
 NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.
 All manufacturing processes including mill end-cast, occurred in USA, MTR
 complies with EN10028-3.1B

Moakley
 Brenda Vismontchi
 Quality Director
 Gerdau Ameristeel

Spencer
 Metallurgical Services Manager
 CARTERSVILLE STEEL MILL

Buyer warrants first of material furnished shall comply with specifications subject to standard published manufacturing variations. NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARE MADE BY THE SELLER, AND SPECIFICALLY EXCLUDED ARE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Any claim for damages for materials that do not conform to specifications must be made from buyer to seller immediately after delivery of same in order to allow the seller the opportunity to inspect the material in question.

THE ABOVE FIGURES ARE CERTIFIED EXTRACTS FROM THE ORIGINAL CHEMICAL AND PHYSICAL TEST RECORDS AS CONTAINED IN THE PERMANENT RECORDS OF COMPANY.



CANTERSVILLE STEEL MILL
394 OLD GRASSDALE RD NE
CANTERSVILLE GA 30121 USA
(770) 387-3300

Chemical and Physical Test Report
Made and Issued in USA

Q-153125

*Lynn Tom 10598
Proc 00 14817*

| | |
|------------------|-----------|
| SHIP DATE | 06/22/10 |
| CUST. ACCOUNT NO | 200-42365 |

PRODUCED IN: CANTERSVILLE

| SHAPE & SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER |
|--------------|---------|--|-------------|------------------|
| W4 X 13 | A572M50 | ASTM A572 GR50-57, ASTM A572-04, ASTM A572 GR50-54 | 0080475-24 | 01270005-24 |
| HEAT ID. | C | 1,11 | | |
| 0102700 | | | | |

Metallurgical Test: Yield 58000 PSI, 400.24 MPa Tensile 75000 PSI, 523.24 MPa %EL: 25.84%, 20.07% min
Customer Requirements: CANTERSVILLE STRAND CAST
Metallurgical Test: Yield 58000 PSI, 400.24 MPa Tensile 70000 PSI, 504 MPa %EL: 24.54%, 21.87% min
Customer Requirements: CANTERSVILLE STRAND CAST

PRODUCED IN: CANTERSVILLE

| SHAPE & SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER |
|--------------|---------|--|-------------|------------------|
| W4 X 13 | A572M50 | ASTM A572 GR50-57, ASTM A572-04, ASTM A572 GR50-54 | 0080475-25 | 01270005-25 |
| HEAT ID. | C | 1,11 | | |
| 0102700 | | | | |

Metallurgical Test: Yield 58000 PSI, 400.24 MPa Tensile 75000 PSI, 523.24 MPa %EL: 25.84%, 20.07% min
Customer Requirements: CANTERSVILLE STRAND CAST
Metallurgical Test: Yield 58000 PSI, 407.14 MPa Tensile 70000 PSI, 494.7 MPa %EL: 24.70%, 20.72% min
Customer Requirements: CANTERSVILLE STRAND CAST

Customer Notes
NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.
All manufacturing processes including melt and cast, occurred in USA MFR
conformed with EN 10081 S118

THE ABOVE FIGURES ARE CERTIFIED EXTRACTS FROM THE ORIGINAL CHEMICAL AND PHYSICAL TEST RECORDS
AS CONTAINED IN THE TREATMENT RECORDS OF COMPANY.

Maskey
Quality Director
Cantersville

Raymond
Metallurgical Services Manager
CANTERSVILLE STEEL MILL

Under reservation that all material furnished shall comply with specifications, subject to approved published manufacturing conditions. NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARE MADE BY THE
SELLER AND SPECIFICALLY EXCEPTED ARE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
In no event shall seller be liable for indirect, consequential or punitive damages, arising out of or related to the material furnished by seller.
Buyer agrees to indemnify seller for damages that do not conform to specifications made by seller. Buyer to indemnify seller immediately after delivery of material to allow the seller the opportunity to inspect the material in
question.



CARTERSVILLE STEEL MILL
 384 OLD GRASSDALE RD NE
 CARTERSVILLE GA 30121 USA
 (770) 387-3300

Chemical and Physical Test Report
 Made and Method in USA

G-147898

*Lynd Inn 10598
 One 8014817*

| | | |
|------------------|--|----------|
| SHIP DATE | | 02/17/10 |
| CUST. ACCOUNT NO | | 50042515 |

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER |
|--------------|--------------|--|-------------|------------------|
| W14 X 29 | A57250/92 | ASTM A572 GR50-07, ASTM A592-08A, ASTM A709 GR50-08A | 0003460-91 | C1069DJCF-91 |
| HEAT ID | C | Mn P S Si Cu Ni Cr Mo V Nb Sn Al C Eq | | |
| G100152 | .09 .75 .008 | .025 .25 .27 .10 .10 .024 .002 .039 .009 .004 .272 | | |

Mechanical Test: Yield 59600 PSI, 404.69 MPa Tensile: 78900 PSI, 549.52 MPa %EL: 20.88%, 20.8/200MM
 Mechanical Test: Yield 82300 PSI, 429.54 MPa Tensile: 76500 PSI, 527.45 MPa %EL: 23.88%, 23.8/200MM

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER |
|--------------|--------------|--|-------------|------------------|
| W14 X 22# | A57250/92 | ASTM A572 GR50-07, ASTM A592-08A, ASTM A709 GR50-08A | 0003460-82 | C1069DJCF-82 |
| HEAT ID | C | Mn P S Si Cu Ni Cr Mo V Nb Sn Al C Eq | | |
| G100160 | .08 .85 .008 | .025 .24 .24 .11 .08 .021 .002 .019 .010 .004 .259 | | |

Mechanical Test: Yield 84200 PSI, 442.64 MPa Tensile: 77800 PSI, 538.41 MPa %EL: 22.48%, 22.4/200MM
 Mechanical Test: Yield 80000 PSI, 441.26 MPa Tensile: 79100 PSI, 545.58 MPa %EL: 20.38%, 20.3/200MM

Customer Notes
 NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.
 All manufacturing processes including mill and cast, occurred in USA MFR complies with EN10004 3.1B

Mackay
 Director Metallurgical
 Quality Director
 Gerdau America

THE ABOVE FIGURES ARE CERTIFIED EXTRACTS FROM THE ORIGINAL CHEMICAL AND PHYSICAL TEST RECORDS AS CONTAINED IN THE PERMANENT RECORDS OF COMPANY.
 Metallurgical Services Manager
 CARTERSVILLE STEEL MILL

Seller warrants that all material furnished shall comply with specifications subject to standard published manufacturing variations. NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARE MADE BY THE SELLER, AND SPECIFICALLY EXCLUDED ARE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
 In no event shall seller be liable for breach, consequential or punitive damages arising out of or related to the materials furnished by seller.
 Any claim for damages for materials that do not conform to specifications must be made from buyer to seller immediately after delivery of same in order to allow the seller the opportunity to inspect the material in question.

Lynch Inv 10598
 Price 8014817

CERTIFIED MATERIAL TEST REPORT

Order Date: 05/21/2013
 FO No: KR-19409CF
 Mill Order No: 1735318
 Load No: 115871
 Manifest No: 2014984

GERDAU AMERISTEEL
 Petersburg Mill
 65 GERDAU AMERISTEEL 25801 Richmond Hwy
 Petersburg, VA 23101
 (804) 524-2855

SIZES
 N 14 X 10# / M360 X 44

GRADE
 952/1/2-50

PRODUCT
 SF 95NS

HEAT NO: 304359320

CHEMICAL ANALYSIS

| C | Mn | P | S | SI | Cu | NI | CR | MO | SH | V | Al | NO | CE |
|-----|-----|------|------|-----|-----|-----|-----|------|------|------|------|------|-----|
| .09 | .85 | .013 | .037 | .20 | .29 | .09 | .09 | .015 | .012 | .001 | .001 | .012 | .28 |

PHYSICAL PROPERTIES

| Yield Strength | | Tensile Strength | | Specimen Area | | elongation | | Bend Test | | ROA |
|----------------|-------|------------------|-------|---------------|---------|------------|-------------|-----------|--------|-----|
| KSI | MPa | KSI | MPa | Sq. In. | Sq. Cm. | % | Gage Length | Dia. | Result | % |
| 50.0 | 344.7 | 66.8 | 460.5 | 0.591 | 3.83 | 26.4 | 8 In | 200 mm | | |
| 53.6 | 369.6 | 72.1 | 497.1 | 0.566 | 3.66 | 26.2 | 8 In | 200 mm | | |

YIELD/TENS TENS/YIELD YIELD/TENS TENS/YIELD

| | | | |
|-----|------|-----|------|
| .75 | 1.33 | .74 | 1.35 |
|-----|------|-----|------|

All manufacturing processes of this product, including electric arc melting and continuous casting, occurred in the U.S.A. CTR complies with EN 10204 3.1

We hereby certify that the contents of this report are correct and accurate. All tests and operations performed by this material manufacturer or its subcontractors, when applicable, are in compliance with the requirements of the material specifications and applicable purchaser designated requirements.

Signed: [Signature] Date: 05/21/2013
 Tom L. Harrington: Quality Assurance Manager
 Signed: _____ Date: _____
 Necessary Public (if applicable)

Lynch Inv 10598
 Pcc 8074817

MUCON STEEL - MEMPHIS

P.O. Box 2259
 Rt. Pleasant, S.C. 29464
 Phone: (843) 336-4100

CHEMICAL TEST REPORT

5/17/10 5:20:33
 1267 MELTED PIG NUMBPC0833 IN THE USA
 All items produced by Nucor-Decor-Steel are
 rolled to a full killed and low grain practice.
 Mercury has been used in the direct manufacturing of this material.

Customer P.: 502 - 1
 B.O.L. E....: 821621

SPECIFICATIONS: Tested in accordance with ASTM Specification A6/A6M and F370.
 RESIST: M310-50-C3
 PSTM: 892-082-18-EE/R123-05-3C/A517-01-50/7209-243M/R1099283

| Description | Beats (Grain(s)) | Yield/ Tensile (ksi) Ratio (MPa) | Elong (%) | C CT | Mn REHRS | P SH | S REHRS | SI V | CU REHRS | NI REHRS | CE1 REHRS | CE2 REHRS | CE3 REHRS | Zn (pieces) | |
|-------------|---------------------|--|--------------|---------|-------------|---------|------------|---------|-------------|-------------|--------------|--------------|--------------|-------------|------|
| | | | | | | | | | | | | | | wt | wt |
| W1348D | 2207027 | | | | | | | | | | | | | 0.06 | 1.06 |
| W1348U | 8992-069 | 55508 | 60906 | 24.43 | | 0.019 | 0.087 | 0.024 | 0.23 | 0.03 | 0.028 | | | 0.31 | 1.09 |
| W32080U | M-3-2550F | 55500 | 69600 | 23.88 | | | | 0.054 | | | | | | 0.21 | 1.19 |
| W12845 | 2207005 | 55500 | 69200 | 24.35 | | 0.025 | 0.086 | 0.024 | 0.18 | 0.03 | 0.023 | | | 0.35 | 1.04 |
| W310897 | 8992-059 | 383 | 69.00 | 23.80 | | 0.032 | 0.086 | 0.03 | 0.23 | 0.03 | 0.023 | | | 0.35 | 1.13 |
| W310897 | M-3-1680B | 312 | 476 | | 4 pieces(s) | | | | | | | | | 0.31 | 1.13 |
| W3295D | 2206955 | 3900 | 69400 | 23.38 | | 0.026 | 0.025 | 0.25 | 0.15 | 0.04 | 0.02 | | | 0.31 | 1.26 |
| W3295D | 8992-062 | 385 | 69.00 | 22.78 | | 0.019 | 0.005 | 0.02 | 0.23 | 0.03 | 0.023 | | | 0.31 | 1.15 |
| W310897 | M-3-1680B | 366 | 479 | | 4 pieces(s) | | | | | | | | | 0.31 | 1.15 |
| W14276 | 1204548 | 83 | 57600 | 21.04 | | 0.02 | 0.27 | 0.21 | 0.18 | 0.05 | 0.02 | | | 0.31 | 1.23 |
| W3295D | 8992-064 | 397 | 69.00 | 25.14 | | 0.032 | 0.005 | 0.032 | 0.27 | 0.03 | 0.023 | | | 0.31 | 1.23 |
| W3295D | M-3-1680B | 490 | 490 | | 7 pieces(s) | | | | | | | | | 0.31 | 1.31 |

Contract based on E-170-3284 gauge length. No yield report was performed. If free and no contract with go doing manufacture.
 CE: C:(M:SI)M:SI(CE:MO:V)51(UNIT:G)115
 CE2: C:(M:SI)M:SI(CE:MO:V)51(UNIT:G)115
 CE3: C:(M:SI)M:SI(CE:MO:V)51(UNIT:G)115

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the test manufacturer are in compliance with material specifications and when designated by the purchaser, meet applicable specifications.

R. Bruce F. Warr
 Metallurgist

(State of South Carolina)
 County of Berkeley
 Sworn and subscribed before me
 day of _____

*Lynda Inv 10598
Date 01/14/87*

**LAND 15
NUCOR STEEL - BERKELEY
P.O. Box 2259
Mc. Pleasant, S.C. 29464
Phone: (843) 336-6000

CERTIFIED WILL TEST REPORT

100% MELTED AND MANUFACTURED IN THE USA
All beams produced by Nucor-Berkeley are cast and rolled to a fully killed and fine grain practice. Mercury has not been used in the direct manufacturing of this material.

Customer #: 502 - 1
B.O.L. #: 822069

SPECIFICATIONS: Tested in accordance with ASTM specification A6/A6M and A370.
RASTD : M270-50-05
ASTM : A992-06a:A36-08/A529-05-50/A572-07-50/A709-14SM/A70909a05

| Description | Heat# | Grade(s) | Yield/Tensile Ratio | Yield (PSI) | Tensile (MPa) | Elong % | C | Cr | Mn | Mo | P | S | B | Ni | V | Cu | Nb | Ti | CE1 | CE2 | Pcm | |
|-------------|---------|----------|---------------------|-------------|---------------|---------|-----|----------|-------------------------|-----|------|------|-------|------|------|-----|-----|-------|-------|-----|-----|---|
| | | | | | | | | | | | | | | | | | | | | | | 9 |
| C15X3.52X40 | 1004162 | A992-06a | .79 | 57000 | 71700 | 24.48 | .06 | .04 | 1.06 | .00 | .010 | .028 | .0002 | .004 | .031 | .05 | .27 | .3271 | .1455 | | | |
| 040' 00.00" | | | | 393 | 494 | | | | | | | | | | | | | | | | | |
| C381K59.52 | 57700 | 72300 | 22.80 | 398 | | | 16 | Piece(s) | Customer PO: NE-19877FP | | | | | | | | | | | | | |
| 012.1920m | | | | | | | | | | | | | | | | | | | | | | |
| W6X15 | 1005951 | A992-06a | .82 | 56900 | 69000 | 24.83 | .06 | .02 | .83 | .00 | .005 | .023 | .0004 | .003 | .028 | .03 | .22 | .2681 | .1262 | | | |
| 045' 00.00" | | | | 392 | 476 | | | | | | | | | | | | | | | | | |
| W150X22.5 | 58200 | 68800 | 25.31 | 401 | 474 | | 9 | Piece(s) | Customer PO: NE-19878FP | | | | | | | | | | | | | |
| 013.7160m | | | | | | | | | | | | | | | | | | | | | | |
| W6X15 | 1005957 | A992-06a | .84 | 58100 | 69300 | 25.34 | .07 | .02 | .84 | .00 | .005 | .023 | .0004 | .003 | .030 | .04 | .21 | .2788 | .1326 | | | |
| 045' 00.00" | | | | 401 | 478 | | | | | | | | | | | | | | | | | |
| W150X22.5 | 56500 | 69000 | 25.09 | 390 | 476 | | 9 | Piece(s) | Customer PO: NE-19878FP | | | | | | | | | | | | | |
| 013.7160m | | | | | | | | | | | | | | | | | | | | | | |
| W6X16 | 2904127 | A992-06a | .85 | 64600 | 76200 | 23.01 | .07 | .04 | 1.21 | .00 | .007 | .031 | .0003 | .003 | .037 | .04 | .29 | .3540 | .1540 | | | |
| 035' 00.00" | | | | 445 | 525 | | | | | | | | | | | | | | | | | |
| W150X24.0 | 63800 | 76000 | 23.75 | 440 | 524 | | 12 | Piece(s) | Customer PO: NE-19878FP | | | | | | | | | | | | | |
| 010.6680m | | | | | | | | | | | | | | | | | | | | | | |

Elongation based on B (20.32cm) gauge length. No Cold Repair was performed. Hg free and no contact with Hg during manufacture.
 CI = $26.01Cu + 3.88Ni + 1.20Cr + 1.49Si + 17.28P - (7.29Cu + Ni) - (9.10Ni + P) - 33.39(Cu + Ni)$
 Pcm = $C + (Si/30) + (Mn/20) + (Cu/20) + (Ni/60) + (Cr/20) + (Mo/15) + (V/10) + 5B$
 CE1 = $C + (Mn/6) + ((Cr + Mo + V)/5) + (Ni + Cu)/15$
 CE2 = $C + ((Mn + Si)/6) + ((Cr + Mo + V + Nb)/5) + (Ni + Cu)/15$

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with material specifications, and when designated by the Purchaser, meet applicable specifications.

Bruce A. York
Metallurgist
State of South Carolina
County of Berkeley
Sworn and subscribed before me
day of _____

*Kymek Inv 10598
 Acc 8014817*

WOLCOR STEEL BERKELEY
 200 BOX 2239
 Mt. Diablo Blvd, S.C. 94665
 Phone: (415) 355-5082

CERTIFIED MILL TEST REPORT

6/18/70 11:33 AM
 1 7 1 1 WILLED AND MEASURED BY THE DSI
 All items produced by Wolcor-Berkeley are C&S
 rolled to a 7011 Willed and Line grain practice.
 Material has not been used in the direct manufacturing of this material.

Customer No: 502
 Certificate No: KE-192372
 S.O.C. No: 121051

SPECIFIC ITEMS: Tested in accordance with ASTM specifications REF&C and ASTM
 RESULT: M270-50-C3
 ASTM: A592-06A1915-3R/F325-23-50/A572-07-50/A705-133V/A713350DS

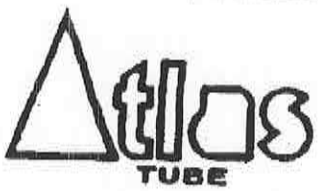
| Description | Weight | | Yield Tensile | | Tensile | | Elongation | | Reduction of Area | | Bend | | Impact | |
|-----------------------------------|---------------------|---------------------|---------------|-------|---------|-------|------------|-------|-------------------|-----|------|-----|--------|-----|
| | As Req'd | As Test | Min | Max | Min | Max | 5 in | 2 in | 50F | 50F | 50F | 50F | 50F | 50F |
| 25K15 050' 03.00' W130K23.5 | 1805995 R992-36a | 2033078 R992-08a | 58100 | 59700 | 72.95 | 79.00 | 25.11 | 27.01 | .06 | .03 | .02 | .01 | .11 | .14 |
| 03.24JDA W8x40 | 992-36a | 2033078 R992-08a | 58100 | 59700 | 72.95 | 79.00 | 25.11 | 27.01 | .06 | .03 | .02 | .01 | .11 | .14 |
| 050' 03.00' | | 2033078 R992-08a | 58100 | 59700 | 72.95 | 79.00 | 25.11 | 27.01 | .06 | .03 | .02 | .01 | .11 | .14 |
| 03.24JDA | | 2033078 R992-08a | 58100 | 59700 | 72.95 | 79.00 | 25.11 | 27.01 | .06 | .03 | .02 | .01 | .11 | .14 |

2 Weld(s) for this WTR.

Examination based on: E: 78.11cm Gauge length. No Yield Point. As performed.
 CI = 26.01(04+0.088)+1.20(CR+1.53SI)+1.78P+1.27(Cu+Al+Ti) 13.33(Cu/C) 13
 Wn = C+((Si/20)+(Mn/20)+(Cu/20)+(Ni/50)+(Cr/20)+((Mo+V)/10)+Se
 I hereby certify that the contents of this report are accurate and
 correct. All test results and operations performed by the material
 manufacturer are in compliance with relevant specifications, and
 when designated by the purchaser, meet applicable specifications.
 Bruce P. Weir
 Metallurgist

Lynch Trv 10598
 Recd PO 14817

Atlas ABC Corp (Atlas Tube Chicago)
 1855 East 122nd Street
 Chicago, Illinois, USA
 60633
 Tel: 773-846-4500
 Fax: 773-846-8128



Ref. B/L: 80388883
 Date: 06.23.2010
 Customer: 81

MATERIAL TEST REPORT

Material: 4.0x4.0x250x24"0"0(5x4). Material No: 400402502400 Made In: USA
 Sales order: 582853 Purchase Order: NE-20094 Melted In: USA

| Heat No | C | Mn | P | S | Si | Al | Cu | Cb | Mo | Ni | Cr | V | Ti | B | N |
|------------|------------|-------|------------|-------|---------|-------|------------------------|-------|-------|-------|----------|-------|-------|-------|-------|
| M05128 | 0.190 | 0.800 | 0.014 | 0.006 | 0.017 | 0.065 | 0.040 | 0.006 | 0.004 | 0.010 | 0.050 | 0.001 | 0.001 | 0.000 | 0.000 |
| Bundle No | Yield | | Tensile | | Eln.2In | | Certification | | | | CE: 0.34 | | | | |
| M800180992 | 069080 Psi | | 078800 Psi | | 33 % | | ASTM A500-07 GRADE B&C | | | | | | | | |

Material Note:
 Sales Or.Note:

Material: 4.0x4.0x250x24"0"0(5x4). Material No: 400402502400 Made In: USA
 Sales order: 582853 Purchase Order: NE-20094 Melted In: USA

| Heat No | C | Mn | P | S | Si | Al | Cu | Cb | Mo | Ni | Cr | V | Ti | B | N |
|------------|------------|-------|------------|-------|---------|-------|------------------------|-------|-------|-------|----------|-------|-------|-------|-------|
| D01192 | 0.200 | 0.820 | 0.015 | 0.010 | 0.017 | 0.064 | 0.040 | 0.005 | 0.003 | 0.010 | 0.040 | 0.001 | 0.001 | 0.000 | 0.000 |
| Bundle No | Yield | | Tensile | | Eln.2In | | Certification | | | | CE: 0.35 | | | | |
| M800180993 | 065530 Psi | | 076090 Psi | | 33 % | | ASTM A500-07 GRADE B&C | | | | | | | | |

Material Note:
 Sales Or.Note:

Material: 4.0x4.0x250x24"0"0(5x4). Material No: 400402502400 Made In: USA
 Sales order: 582853 Purchase Order: NE-20094 Melted In: USA

| Heat No | C | Mn | P | S | Si | Al | Cu | Cb | Mo | Ni | Cr | V | Ti | B | N |
|------------|------------|-------|------------|-------|---------|-------|------------------------|-------|-------|-------|----------|-------|-------|-------|-------|
| M01128 | 0.190 | 0.800 | 0.014 | 0.006 | 0.017 | 0.065 | 0.040 | 0.006 | 0.004 | 0.010 | 0.050 | 0.001 | 0.001 | 0.000 | 0.000 |
| Bundle No | Yield | | Tensile | | Eln.2In | | Certification | | | | CE: 0.34 | | | | |
| M800180993 | 069080 Psi | | 078800 Psi | | 33 % | | ASTM A500-07 GRADE B&C | | | | | | | | |

Material Note:
 Sales Or.Note:

Authorized by Quality Assurance: *M. Weber*
 The results reported on this report represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.
 D1.1 method.



Lynch Trx 10598

Price 8014817

Atlas ABC Corp (Atlas Tube Chicago)
1855 East 122nd Street
Chicago, Illinois, USA
60633
Tel: 773-646-4500
Fax: 773-646-6128

Ref.B/L: 80379469
Date: 04.16.2010
Customer: 81



MATERIAL TEST REPORT

Material: 5.0x5.0x500x35*0*0(2x1)DUS

Material No: 50050500

Made in: USA

Melted in: USA

Sales order: 542911

Purchase Order: B1321DR

| Heat No | C | Mn | P | S | Si | Al | Cu | Cb | Mo | Ni | Cr | V | Ti | B | N |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Y05708 | 0.200 | 0.800 | 0.011 | 0.009 | 0.026 | 0.046 | 0.030 | 0.005 | 0.004 | 0.010 | 0.040 | 0.001 | 0.001 | 0.000 | 0.000 |

| Bundle No | Yield | Tensile | Eln.2in | Certification | CE: 0.35 |
|------------|------------|------------|---------|------------------------|----------|
| M800172381 | 067220 Psi | 081350 Psi | 35 % | ASTM A500-07 GRADE B&C | |

Material Note:
Sales Or.Note:

Material: 5.0x5.0x500x35*0*0(3x1)DUS

Material No: 50050500

Made in: USA

Melted in: USA

Sales order: 542911

Purchase Order: B1321DR

| Heat No | C | Mn | P | S | Si | Al | Cu | Cb | Mo | Ni | Cr | V | Ti | B | N |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Y05708 | 0.200 | 0.800 | 0.011 | 0.009 | 0.026 | 0.046 | 0.030 | 0.005 | 0.004 | 0.010 | 0.040 | 0.001 | 0.001 | 0.000 | 0.000 |

| Bundle No | Yield | Tensile | Eln.2in | Certification | CE: 0.35 |
|------------|------------|------------|---------|------------------------|----------|
| M800172382 | 067220 Psi | 081350 Psi | 35 % | ASTM A500-07 GRADE B&C | |

Material Note:
Sales Or.Note:

Material: 5.0x5.0x500x35*0*0(4x1)DUS

Material No: 50050500

Made in: USA

Melted in: USA

Sales order: 542911

Purchase Order: B1321DR

| Heat No | C | Mn | P | S | Si | Al | Cu | Cb | Mo | Ni | Cr | V | Ti | B | N |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Y05708 | 0.200 | 0.800 | 0.011 | 0.009 | 0.026 | 0.046 | 0.030 | 0.005 | 0.004 | 0.010 | 0.040 | 0.001 | 0.001 | 0.000 | 0.000 |

| Bundle No | Yield | Tensile | Eln.2in | Certification | CE: 0.35 |
|------------|------------|------------|---------|------------------------|----------|
| M800172387 | 067220 Psi | 081350 Psi | 35 % | ASTM A500-07 GRADE B&C | |

Material Note:
Sales Or.Note:

Authorized by Quality Assurance:
The results reported on this report represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.

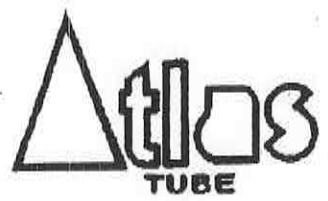
Conducted using the AWS D1.1 method.



Lynch Tr 10598
 Price 8014817

Atlas ABC Corp (Atlas Tube Chicago)
 1855 East 122nd Street
 Chicago, Illinois, USA
 60633
 Tel: 773-646-4500
 Fax: 773-646-8128

Ref.B/L: 80379123
 Date: 04.20.2010
 Customer: 81



MATERIAL TEST REPORT

Material: 4.0x4.0x375x60"0(2x2)RAL Material No: 40040375 Made in: USA
 Melted in: USA
 Sales order: 539256 Purchase Order: C1244D - Rail

| Heat No | C | Mn | P | S | SI | Al | Cu | Cb | Mo | NI | Cr | V | TI | B | N |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 15589C | 0.210 | 0.820 | 0.011 | 0.008 | 0.012 | 0.052 | 0.050 | 0.006 | 0.003 | 0.020 | 0.050 | 0.000 | 0.001 | 0.000 | 0.000 |

Bundle No Yield Tensile Eln.2in Certification CE: 0.36
 M800170855 068430 Psi 087620 Psi 36 % ASTM A500-07 GRADE B&C

Material Note:
 Sales Or.Note:

Material: 5.0x5.0x500x46"0(4x1)RAL Material No: 50050500 Made in: USA
 Melted in: USA
 Sales order: 523659 Purchase Order: C1061DJG - rail spec

| Heat No | C | Mn | P | S | SI | Al | Cu | Cb | Mo | NI | Cr | V | TI | B | N |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| M04094 | 0.230 | 0.810 | 0.012 | 0.008 | 0.012 | 0.059 | 0.020 | 0.001 | 0.002 | 0.010 | 0.030 | 0.001 | 0.001 | 0.000 | 0.000 |

Bundle No Yield Tensile Eln.2in Certification CE: 0.36
 M800160493 060960 Psi 074880 Psi 42 % ASTM A500-07 GRADE B&C

Material Note:
 Sales Or.Note:

Material: 6.0x6.0x250x55"0(2x2)RAL Material No: 60060250 Made in: USA
 Melted in: USA
 Sales order: 539256 Purchase Order: C1244D - Rail

| Heat No | C | Mn | P | S | SI | Al | Cu | Cb | Mo | NI | Cr | V | TI | B | N |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| E02130 | 0.210 | 0.790 | 0.012 | 0.008 | 0.008 | 0.045 | 0.030 | 0.001 | 0.003 | 0.010 | 0.030 | 0.001 | 0.001 | 0.000 | 0.000 |

Bundle No Yield Tensile Eln.2in Certification CE: 0.35
 M800170133 059520 Psi 077780 Psi 36 % ASTM A500-07 GRADE B&C

Material Note:
 Sales Or.Note:

M. Welch
 Authorized by Quality Assurance:
 The results reported on this report represent the actual attributes of the material furnished and indicate full compliance with all applicable specification and contract requirements.
 Certified using the AWS D1.1 method.



*Lynn Inr 10598
Proc 88 14817*



CMC STEEL ALABAMA
101 S 50TH STREET
BIRMINGHAM AL 35212-3525

CERTIFIED MILL TEST REPORT
For additional copies call
800-637-3227

We hereby certify that the test results presented here
are accurate and conform to the reported grade specification

Marcus W. McCleary
Marcus W. McCleary - CMC Steel AL
Quality Assurance Manager

| | | | | |
|---------------------------------|---|--|--|-------------------------------|
| HEAT NO.: 1007141 | S | | | Delivery #: 80335526 |
| SECTION: CHANNEL 6"x8.25" 20'0" | O | | | ROL #: 70113471 |
| A36/52950 | L | | | CUST PO#: NE-20491 |
| GRADE: ASTM A36-08/A529-05 GR50 | D | | | CUST P/N: |
| ROLL DATE: 06/18/2010 | | | | DLVRY LBS / HEAT: 5412,000 LB |
| MELT DATE: 06/10/2010 | T | | | DLVRY PCS / HEAT: 33 EA |
| | O | | | |

| Characteristic | Value | Characteristic | Value | Characteristic | Value |
|-------------------------|---------|-------------------------------|---------|----------------|-------|
| C | 0.15% | Elongation test 1 | 27% | | |
| Mn | 0.67% | Elongation Gage Lgth test 1 | 8IN | | |
| P | 0.012% | Yield to tensile ratio test 1 | 0.78 | | |
| S | 0.019% | Yield Strength test 2 | 59.8ksi | | |
| Si | 0.17% | Tensile Strength test 2 | 75.4ksi | | |
| Cu | 0.30% | Elongation test 2 | 26% | | |
| Cr | 0.16% | Elongation Gage Lgth test 2 | 8IN | | |
| NI | 0.13% | Yield to tensile ratio test 2 | 0.79 | | |
| Mo | 0.040% | | | | |
| V | 0.002% | | | | |
| Co | 0.011% | | | | |
| Sn | 0.011% | | | | |
| B | 0.0003% | | | | |
| Ti | 0.001% | | | | |
| N | 0.0084% | | | | |
| Carbon Eq A5 | 0.33% | | | | |
| Carbon Eq A529 | 0.36% | | | | |
| Yield Strength test 1 | 58.8ksi | | | | |
| Tensile Strength test 1 | 75.3ksi | | | | |

THIS MATERIAL IS FULLY KILLED, 100% MELTED AND MANUFACTURED IN THE USA, WITH NO WELD REPAIR OR MERCURY CONTAMINATION IN THE PROCESS

REMARKS :
MATERIAL ALSO MEETS ASTM GRADE A36, A529 GR.50, A572 GR.50, A709 GR.36, A709 GR.50, A992, AASHTO GRADE M270 GR.36, M270 GR.50, CSA G40.21-04 GRADE 44W, 50W

07/15/2010 14:27:46

Lynch Trn 10598
Prze 0014817

| | | | | | |
|--|--|---|--|---|--|
| A01 ArcelorMittal Poland S.A. Oddział w Dąbrowie Górniczej al. J. Piłsudskiego 82 41-308 Dąbrowa Górnicza | | A02 ATEST TEST REPORT ASTM A5/ASX | | Z01.1 Dąbrowa Górnicza, 01.03.2010 | |
| A04.1 Zamawiający: Purchaser: ARCELMITTAL COMMERCIAL SECTIONS S A 4221 ESCH-SUR-ALZETTE 56 RUE DE LUXEMBOURG 56 RUE DE LUXEMBOURG | | A04.3 Adres wysyłkowy: Address: | | ArcelorMittal | |
| A07 | | A08 | | A09 | |
| Nr zamówienia klienta No of purchase order | | Nr kontraktu Contract No | | Nr zlecenia/Poz Manuf. Order No/Pos | |
| C1135D | | PL277639853/10-10203236 | | 20004130/000004 | |
| ORDER: C1135D | | LOT: NEW HAVEN | | PREBON: 1700010305 | |
| B01 | | B02 | | B03 | |
| Nazwa prasociłowa/According ASTM A 6-07 | | Nazwa klasyfikacyjna/Classification standards 40 ASTM A992/ASTM A572 | | Nazwa wytrzymałościowa/Tolerance standards ASTM A 6-07 | |
| B02-B03 803-811 Ciężarki ciężkie C 8 X 11,5 długość: 12192,00 mm gatunek stali: A992/A572GR50 Heavy channels C 8 X 11,5 length: 12192,00 mm steel grade: A992/A572GR50 Steel SILICON KILLED. | | | | | |
| B07 | | B08 | | B09 | |
| Wytap/Heat 010603 | | Paczki/Sztuki - Bundles/Pieces 6 / 120 | | Waga/Tone/Weight 25,032 t | |
| Razem/Total | | 6 / 120 | | 25,032 t | |
| B11-C02 Skład chemiczny - Chemical composition [%] | | | | | |
| B07 C Mn Si P S Cu Cr Ni Al N ₂ Mo Nb V Ti Sn Pb As B O H ₂ CEV | | | | | |
| 010603 0,17 0,51 0,194 0,010 0,006 0,01 0,02 0,01 0,001 0,0050 0,003 0,001 0,040 0,001 0,003 0,001 0,002 0,02 | | | | | |
| B12-C03 Właściwości mechaniczne - Mechanical properties | | | | | |
| B07 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38 C39 C40 C41 C42 C43 C44 C45 C46 C47 C48 C49 C50 C51 C52 C53 C54 C55 C56 C57 C58 C59 C60 C61 C62 C63 C64 C65 C66 C67 C68 C69 C70 C71 C72 C73 C74 C75 C76 C77 C78 C79 C80 C81 C82 C83 C84 C85 C86 C87 C88 C89 C90 C91 C92 C93 C94 C95 C96 C97 C98 C99 C100 | | | | | |
| Wytap/Heat Re R03 Re A A RvRn R02/Rn FvRstn Temp. Fr.1/Test 1 Fr.2/Test 2 Fr.3/Test 3 Średnia average test | | | | | |
| 010603 375,0 525,0 200 24,0 0,71 | | | | | |
| 010603 377,0 522,0 200 24,0 0,72 | | | | | |
| Z01 Stwierdzenia o zgodności: Producent deklaruje, że dostarczona wyroby są zgodne z warunkami zamówienia. Statement of compliance: The producer guarantees that delivered goods are in accordance with the conditions of the order. | | | | | |
| A05, Z05.2 User Certified Welder 100mm x 10mm 010603 | | | | | |

P.O. # 14827

2288



Friday, 06-Aug-2010

From:

Joanne Vey
62 Maple Street
Manchester, NH
03103
Phone : (603) 626-7351
Fax : (603) 626-7820
Email : jvey@millmetals.net

To:

PRECISION WELDING & FAB
P.O. Box 880
Westbrook, ME
04098
Phone : (207) 854-9330
Fax : (207) 854-9694

Document Summary Page

The MTR's are printed in the following order:

| # | Heat | Item ID | Description |
|---|------------|----------|-----------------------|
| 1 | B0S6699-03 | P3614820 | PLATE HR A36 1/4X8X20 |

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PO 57424

JUL 22 2010
JUL 22 2010

PART NO.

NUCOR
NUCOR STEEL TUSCALOOSA, INC.

MILL TEST CERTIFICATE

1700 HOLT RD N.E.
TUSCALOOSA, AL 35404-1000
800-827-8872

| | | | | | | |
|-------------|----------------|-------------------|-------------|-------------|--------------------|------------------|
| Load Number | Tally | Mill Order Number | P.O. Number | Part Number | Certificate Number | Date |
| 374028 | 00000000380335 | N-101332-002 | PHL-9434 | | L296301-1 | 07/03/2010 04:30 |

Order Description: ABS A, 0.2500 IN x 96.000 IN x 240.000 IN
 Quality Plan Description: ABS A / ABS: ASTM A36-08/ABS GR A 10/A709-36-08/ASME SA36-03
 P3614820
 Customer: Sold TO: CHAPEL STEEL CO. SPRING HOUSE PA
 SHIP TO: CHAPEL STEEL CO. POTTSTOWN PA

| Shipped Item | Heat/Slab Number | Certified By | C | Mn | P | S | Si | Cu | NI | Cr | Mo | Co | V | Al | Ti | NZ | B | Ca | Sr | QTY |
|--------------|------------------|--------------|-----------|-------------|-------|--------------|------|----------|---------|-------------------------|-------|-------|---------|-------|-------|-----------|--------|--------|-------|------|
| 0F1302C | B0S6699-03 *** | B0S6699 | 0.19 | 0.91 | 0.010 | 0.009 | 0.07 | 0.22 | 0.07 | 0.07 | 0.014 | 0.000 | 0.002 | 0.033 | 0.001 | 0.010 | 0.0001 | 0.0024 | 0.008 | 0.38 |
| Shipped Item | Certified By | Heat Number | Yield ksi | Tensile ksi | Y/T % | ELONGATION % | | Bond OK? | Hard HB | Charpy Impacts (ft-lbf) | | | Shear % | | | Test Temp | | | | |
| 0F1302C | S0F1052FTT | B0S6699 *** | 45.8 | 68.0 | 67.4 | 2" | 8" | | | 1 | 2 | 3 | Avg | 1 | 2 | 3 | Avg | | | |
| 0F1302C | S0F1053FTT | B0S6699 *** | 46.4 | 68.5 | 67.7 | 30.8 | | | | | | | | | | | | | | |
| 0F1302C | S0F1052MIT | B0S6699 *** | 45.5 | 62.1 | 73.3 | 30.7 | | | | | | | | | | | | | | |
| 0F1302C | S0F1053MIT | B0S6699 *** | 46.8 | 63.9 | 73.2 | 32.5 | | | | | | | | | | | | | | |

Items: 1 PCS: 13 Weight: 21236 LBS

Mercury has not come in contact with this product during the manufacturing process and has any mercury been used by the manufacturing process. Certified in accordance with EN 10204 3.1. No weld repair has been performed on this material. Manufactured under the ABS Quality Assurance Program. Certificate number 06-MMPQA-392. We hereby certify that the information herein has been made to the applicable specifications by the EAF process and tested in accordance with the requirements of the ABS rules with satisfactory results. Manufactured to a fully killed fine grain practice. Produced from Coal

ISO 9001:2008 Registered, PED Certified

Indicates Heats melted and Manufactured in the U.S.A.

We hereby certify that the product described above passed all of the tests required by the specification.

April Davis
April Davis - QA Engineer

P.O. # 14858

2233



Friday, 30-Jul-2010

From:

Joanne Vey
62 Maple Street
Manchester, NH
03103
Phone : (603) 626-7351
Fax : (603) 626-7820
Email : jvey@millmetals.net

To:

PRECISION WELDING & FAB
P.O. Box 880
Westbrook, ME
04098
Phone : (207) 854-9330
Fax : (207) 854-9694

Document Summary Page

The MTR's are printed in the following order:

| # | Heat | Item ID | Description |
|---|---------|---------|-----------------------|
| 1 | G101772 | A44516 | ANGLE HR 4 X 4 X 5/16 |

The attached documents were produced using Mill Metals MetalTrace ScanStation.

MTRs produced using MetalTrace®. Visit www.TraceApps.com or call toll-free 1-866-429-7007 for more information.

A-7

GERDAU AMERISTEEL

CARTERSVILLE STEEL MILL
 394 OLD GRASSDALE RD NE
 CARTERSVILLE GA 30121 USA

Chemical and Physical Test Report

Made and Melted in USA

CUSTOMER: LEROUX-STEEL

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER |
|--------------|-------|---|-------------|------------------|
| AA X 4 X 3/8 | 50W | CSA G40.21-04 50W | | |
| HEAT ID. | C | Mn P S SI Cu NI Cr Mo V Nb B N Sn Al Ti Ca Zn C Equ | | |
| G101760 | .16 | .90 .011 .029 .20 .27 .09 .05 .024 .016 .000 .0003 .0093 .009 .002 .00100(.00130) .00470 .382 | | |

Mechanical Test: Yield 51800 PSI, 357.15 MPA Tensile: 78800 PSI, 543.31 MPA %El: 20.78in, 20.7200MM

Customer Requirements CASTING: STRAND CAST Tensile: 74200 PSI, 511.59 MPA %El: 23.28in, 23.2200MM

Mechanical Test: Yield 54200 PSI, 373.7 MPA Tensile: 74200 PSI, 511.59 MPA %El: 23.28in, 23.2200MM

Customer Requirements CASTING: STRAND CAST

| SHAPE + SIZE | GRADE | SPECIFICATION | SALES ORDER | CUST P.O. NUMBER |
|---------------|-------|---|-------------|------------------|
| AA X 4 X 5/16 | 50W | CSA G40.21-04 50W | | |
| HEAT ID. | C | Mn P S SI Cu NI Cr Mo V Nb B N Sn Al Ti Ca Zn C Equ | | |
| G101772 | .17 | .92 .012 .024 .20 .31 .10 .04 .023 .015 .000 .0002 .0078 .011 .002 .00100(.00270) .00310 .403 | | |

Mechanical Test: Yield 52800 PSI, 362.66 MPA Tensile: 71600 PSI, 493.66 MPA %El: 23.28in, 23.2200MM

Customer Requirements CASTING: STRAND CAST Tensile: 73300 PSI, 505.39 MPA %El: 24.18in, 24.1200MM

Mechanical Test: Yield 54500 PSI, 375.76 MPA Tensile: 73300 PSI, 505.39 MPA %El: 24.18in, 24.1200MM

Customer Requirements CASTING: STRAND CAST

A44516 (40)



All manufacturing processes including melt and cast, occurred in USA. MTR complies with EN10204 3.1B

Maskey

Bhaaskar Velamanchi
 Quality Director
 Gerdau Ameristeel

Yamany

Metallurgical Services Manager
 CARTERSVILLE STEEL MILL

THE ABOVE FIGURES ARE CERTIFIED EXTRACTS FROM THE ORIGINAL CHEMICAL AND PHYSICAL TEST RECORDS AS CONTAINED IN THE PERMANENT RECORDS OF COMPANY.

Seller warrants that all material furnished shall comply with specifications subject to standard published manufacturing variations. NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARE MADE BY THE SELLER, AND SPECIFICALLY EXCLUDED ARE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. In no event shall seller be liable for indirect, consequential or punitive damages arising out of or related to the materials furnished by seller. Any claim for damages for materials that do not conform to specifications must be made from buyer to seller immediately after delivery of same in order to allow the seller the opportunity to inspect the material in question.

Lynd Jan 10598A
Prce 8014817

2023

GERDAU AMERISTEEL
CARTERSVILLE STEEL MILL
304 OLD GRASSDALE RD NE
CARTERSVILLE GA 30121 USA
(770) 287-3300

Chemical and Physical Test Report
Made and Method in USA

G-155720

| | | | | | |
|------------------------------|--|--------------------------|--|---------------------------------|--|
| SHIP DATE 08/27/10 | | SALES ORDER 008841-68 | | CUST P.O. NUMBER C13000CF-88 | |
| CUST. ACCOUNT NO 50042985 | | | | | |

PRODUCED IN: CARTERSVILLE

| SHAPE • SIZE | GRADE | SPECIFICATION | Yield | Tensile | Elongation | Reduction of Area | Charpy |
|--------------|--|---|-------|---------|------------|-------------------|--------|
| W10 X 129 | A72200M2 | ASTM A572-GR50-07, ASTM A582-08A, ASTM A799-08A | 50.00 | 65.00 | 21.00% | 0.00% | 0.00% |
| HEAT I.D. | C Mn P S Si Cu Ni C Mo V Nb Ti B N Sn As Se | | | | | | |
| G104643 | .07 .36 .020 .018 .27 .32 .08 .09 .022 .028 .002 .003 .000 .012 .006 .00300 .00120 .00180 .001 | | | | | | |

Customer Requirements: CASTING: STRAND CAST
 Comment: NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.
 Mechanical Test: Yield 57000 PSI, 411.92 MPA Tensile: 71800 PSI, 495.75 MPA Elong: 21.00%, 21.02000mm
 Customer Requirements: CASTING: STRAND CAST
 Comment: NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.

PRODUCED IN: CARTERSVILLE

| SHAPE • SIZE | GRADE | SPECIFICATION | Yield | Tensile | Elongation | Reduction of Area | Charpy |
|--------------|--|---|-------|---------|------------|-------------------|--------|
| W10 X 129 | A72200M2 | ASTM A572-GR50-07, ASTM A582-08A, ASTM A799-08A | 50.00 | 65.00 | 21.00% | 0.00% | 0.00% |
| HEAT I.D. | C Mn P S Si Cu Ni C Mo V Nb Ti B N Sn As Se | | | | | | |
| G104644 | .09 .34 .018 .016 .20 .28 .08 .07 .023 .029 .000 .002 .000 .008 .008 .00100 .00210 .00050 .000 | | | | | | |

Customer Requirements: CASTING: STRAND CAST
 Comment: NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.
 Mechanical Test: Yield 57000 PSI, 399.21 MPA Tensile: 70200 PSI, 484.01 MPA Elong: 21.00%, 21.12000mm
 Customer Requirements: CASTING: STRAND CAST
 Comment: NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.

Customer Notes

NO WELD REPAIRMENT PERFORMED. STEEL NOT EXPOSED TO MERCURY.
 All manufacturing processes including heat and cool, occurred in USA. MFR
 complies with EN10204 3.1B

Shackay
 Quality Director
 Customer Approved

Shankar Yadavani

Yadavani

Managerial Services Manager
 CARTERSVILLE STEEL MILL

Seller warrants that all materials furnished shall comply with specifications subject to standard published manufacturing variations. NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARE MADE BY THE SELLER, AND SPECIFICALLY EXCLUDED ARE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
 In no event shall seller be liable for lost profits, consequential or punitive damages arising out of or related to the materials furnished by seller.
 Any claim for damages for materials that do not conform to specifications must be made from buyer to seller immediately after delivery of terms in order to allow the seller the opportunity to inspect the material in question.

THE ABOVE FIGURES ARE CERTIFIED EXTRACTS FROM THE ORIGINAL CHEMICAL AND PHYSICAL TEST RECORDS AS CONTAINED IN THE PERMANENT RECORDS OF COMPANY.

P.O. # 14858



Friday, 30-Jul-2010

From:

Joanne Vey
62 Maple Street
Manchester, NH
03103
Phone : (603) 626-7351
Fax : (603) 626-7820
Email : jvey@millmetals.net

To:

PRECISION WELDING & FAB
P.O. Box 880
Westbrook, ME
04098
Phone : (207) 854-9330
Fax : (207) 854-9694

Document Summary Page

The MTR's are printed in the following order:

| # | Heat | Item ID | Description |
|---|--------|----------|---------------------|
| 1 | M33959 | HRF12312 | FLAT HR 1/2 X 3-1/2 |

The attached documents were produced using Mill Metals MetalTrace ScanStation.

MTRs produced using MetalTrace®. Visit www.TraceApps.com or call toll-free 1-866-429-7007 for more information.

PO#4444

#1



Certificat d'essai/Test Certificate

ArcelorMittal

Usine de Contrecoeur Ouest / Contrecoeur West works

| | |
|--|--|
| Vendue à - Sold to ACIER LEROUX, UNE DIVISION DE MÉTAUX RUSSEL INC. 1331 Graham Bell BOUCHERVILLE QC J4B 6A1 CANADA | Expédié à - Shipped to ACIER LEROUX, UNE DIVISION DE MÉTAUX RUSSEL INC. 1331 Graham Bell BOUCHERVILLE QC J4B 6A1 CANADA |
|--|--|

HRF12312(20')

| | | | | | |
|----------------------------------|---|---|---|---|---|
| No de com. / Sale order 57115 | No de bon de comm. / Customer Order M 94023041 | Connaissance / Bill of lading 80193451 | Date expé. / Date shipped 2010/05/18 | Date du cert / Certificate Date 2010/05/18 | No de Certificat / Certificate no 0000068367 |
|----------------------------------|---|---|---|---|---|

| | | | | | |
|--------------------------|---|---------------------------------------|----------------------------------|------------------------------------|----------------------------|
| Article / Item 000005 | Description 3.500*40.500" SX G40.21 44W 50W 20'00" G40.21 44W 50W | No Matériel / Material No 20002499 | No pièce / Part No 0000000000 | Poids expédié / Weight 18,244LB | Coulée / Heat M33959_01 |
|--------------------------|---|---------------------------------------|----------------------------------|------------------------------------|----------------------------|

ANALYSE CHIMIQUE-CHEMICAL ANALYSIS (%)

| | C | Mn | P | S | Si | Cu | Ni | Cr | Mo | V | Nb | Al _T | Al _S |
|------------------------|--------|-------|-------|--------|--------|-------|-------|------|-------|-------|-------|-----------------|-----------------|
| Coulée/Heat: M33959_01 | 0.160 | 1.25 | 0.018 | 0.031 | 0.21 | 0.36 | 0.08 | 0.17 | 0.019 | 0.002 | 0.009 | 0.002 | |
| | N | Sn | Ti | Bt | Ca | Pb | As | Co | Sb | DI | C.E. | | |
| Coulée/Heat: M33959_01 | 0.0127 | 0.011 | | 0.0004 | 0.0012 | 0.000 | 0.006 | | 0.004 | | 0.44 | | |

ESSAI JOMINY - JOMINY TEST(hRc)

| Coulée/Heat: | JH | J1 | J2 | J3 | J4 | J5 | J6 | J8 | J10 | J12 | J14 | J16 | J20 | J24 | J28 | J32 |
|--------------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| M33959_01 | | | | | | | | | | | | | | | | |

PROPRIÉTÉS MÉCANIQUES - MECHANICAL PROPERTIES

| Heat | Yield L Flas. (KSI) | Tensile L.Ultime (KSI) | Elong 8" All 200mm (%) |
|-----------|---------------------|------------------------|------------------------|
| M33959_01 | 54.4 | 77.1 | 25.5 |

Remarques/Remarks:
Cet acier fut produit au Canada



094058326

Signature:
Métallurgie (AQ)
Métallurgie (QA)

[Handwritten signature]

Noé Beland

P.O. # 14858



Friday, 30-Jul-2010

From:

Joanne Vey
62 Maple Street
Manchester, NH
03103
Phone : (603) 626-7351
Fax : (603) 626-7820
Email : jvey@millmetals.net

To:

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Fax : (207) 854-9694

Document Summary Page

The MTR's are printed in the following order:

| # | Heat | Item ID | Description |
|---|-------|---------|----------------------|
| 1 | 72559 | A4338 | ANGLE HR 4 X 3 X 3/8 |

The attached documents were produced using Mill Metals MetalTrace ScanStation.

MTRs produced using MetalTrace®. Visit www.TraceApps.com or call toll-free 1-866-429-7007 for more information.

PO#4444

CUSTOMER NAME

Mill Metals

56651

377979

77754

72559

MATERIAL CERTIFICATION REPORT

TRIAD METALS
1951 BESSEMER RD.
PETERSBURG, VA 23805

TRIAD METALS INTERNATIONAL
1 VILLAGE RD
HORSHAM, PA 19044

ArceorMittal LaPlace
138 HWY 3217
LA PLACE, LOUISIANA 70068
Telephone (985) 652-4900

PO:17754

DATE 03/27/10

INVOICE NO.

PRODUCT UNEQUAL ANGLES

HEAT NO. 72559

GRADE A3652950

SIZE U 4 X 3 X 3/8 X 8.5

LENGTH 40'0"

TESTED IN ASTM A6

A4338

ACCORDANCE WITH

| CHEMICAL ANALYSIS | MECHANICAL PROPERTIES | TEST 1 | | TEST 2 | | TEST 3 | |
|-------------------|-----------------------|----------------------|---------|---------------------------|---------|-----------------|--------|
| | | IMPERIAL | METRIC | IMPERIAL | METRIC | IMPERIAL | METRIC |
| C | YIELD STRENGTH | 57,400 PSI | 396 MPa | 57,900 PSI | 399 MPa | PSI | MPa |
| Mn | TENSILE STRENGTH | 76,400 PSI | 527 MPa | 76,600 PSI | 528 MPa | PSI | MPa |
| P | ELONGATION | 35.0 % | 35.0 % | 34.0 % | 34.0 % | % | % |
| S | GAUGE LENGTH | 8 in | 203 mm | 8 in | 203 mm | in | mm |
| Si | BEND TEST DIAMETER | d | d | d | d | d | d |
| Cu | BEND TEST RESULTS | sq in | sq mm | sq in | sq mm | sq in | sq mm |
| Ni | SPECIMEN AREA | ft-lbs | % | ft-lbs | % | ft-lbs | % |
| Cr | REDUCTION OF AREA | ft-lbs | J | ft-lbs | J | ft-lbs | J |
| Mo | IMPACT STRENGTH | INTERNAL CLEANLINESS | | GRAIN SIZE | | HARDNESS | |
| Co | IMPACT STRENGTH | IMPERIAL | METRIC | GRAIN PRACTICE | | REDUCTION RATIO | |
| V | AVERAGE TEST TEMP | ft-lbs | J | SEVERITY FREQUENCY RATING | | GRAIN PRACTICE | |
| B | ORIENTATION | F | C | RATING | | REDUCTION RATIO | |
| Al | | | | | | | |
| Sn | | | | | | | |
| N | | | | | | | |
| Ti | | | | | | | |

A529 GRADE 50

Customer Grade & Specs: A36
44W, CSA50W, A70936
ASME SA36

Cl .34
CE

I HEREBY CERTIFY THAT THE MATERIAL TEST RESULTS PRESENTED HERE ARE FROM THE REPORTED HEAT AND ARE CORRECT. ALL TESTS WERE PERFORMED IN ACCORDANCE TO THE SPECIFICATIONS REPORTED ABOVE. ALL STEEL IS ELECTRIC FURNACE MELTED, MANUFACTURED, PROCESSED, AND TESTED IN THE U.S.A WITH SATISFACTORY RESULTS, AND IS FREE OF MERCURY CONTAMINATION IN THE PROCESS.

NOTARIZED UPON REQUEST:

SWORN TO AND SUBSCRIBED BEFORE ME IN AND FOR ST. JOHN

PARISH ON THIS _____ DAY OF _____, 20_____

SIGNED

Mark Edwards

MARK EDWARDS, QUALITY ASSURANCE SUPERVISOR

DIRECT ANY QUESTIONS OR NECESSARY CLARIFICATIONS CONCERNING THIS REPORT TO THE SALES DEPARTMENT.

1-800-535-7692 (USA)

Michael E. Solleau, # 81887, Notary Public